TYPHOON SERIES

MODELS

TY3061KH3, TY3073KH3

Published 02/13

Part No. 50071865

OPERATOR'S MANUAL

This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the unit at all times. READ, UNDERSTAND, and FOLLOW the Safety and Operation Instructions contained in this manual before operating the equipment. *C01-Cover*

RHINO®

1020 S. Sangamon Ave.
Gibson City, IL 60936
800-446-5158
Email: parts@servis-rhino.com

¡ATENCIÓN!
LEA EL INSTRUCTIVO

Si No Lee Ingles, Pida
Ayuda a Alguien
Que Se Lo Lea Para Que le
Traduzca Las
Medidas de Seguridad

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CONGRATULATIONS!

You have invested in the best mower of its type on the market today.

The care you give your Rhino mower will greatly determine your satisfaction with its performance and its service life. We urge a careful study of this manual to provide you with a thorough understanding of your new mower before operating, as well as suggestions for operation and maintenance.

If your manual should become lost or destroyed, Rhino will be glad to provide you with a new copy. Order from Rhino,1020 S Sangamon Ave. Gibson City Il 60936. Most of our manuals can also be downloaded from our website at www.service-rhino.com.

As an authorized Rhino dealer, we stock genuine Rhino parts which are manufactured with the same precision and skill as our original equipment. Our trained service personnel are well informed on methods required to service Rhino equipment, and are ready and able to help you.

Should you require additional information or assistance, please contact us.

YOUR AUTHORIZED
RHINO DEALER

BECAUSE RHINO MAINTAINS AN ONGOING PROGRAM OF PRODUCT IMPROVEMENT, WE RESERVE THE RIGHT TO MAKE IMPROVEMENTS IN DESIGN OR CHANGES IN SPECIFICATIONS WITHOUT INCURRING ANY OBLIGATION TO INSTALL THEM ON UNITS PREVIOUSLY SOLD.

BECAUSE OF THE POSSIBILITY THAT SOME PHOTOGRAPHS IN THIS MANUAL WERE TAKEN OF PROTOTYPE MODELS, PRODUCTION MODELS MAY VARY IN SOME DETAIL. IN ADDITION, SOME PHOTOGRAPHS MAY SHOW SHIELDS REMOVED FOR PURPOSES OF CLARITY. **NEVER OPERATE** THIS IMPLEMENT WITHOUT ALL SHIELDS IN PLACE.

TYPHOON SERIES
ZERO TURN RIDING MOWER

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RETAIL CUSTOMER'S RESPONSIBILITY UNDER THE RHINO WARRANTY

It is the Retail Customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment.

It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard.

It is the Retail Customer's responsibility to deliver the product to the authorized Rhino Dealer, from whom he purchased it, for service or replacement of defective parts which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five (45) days of failure.

It is the Retail Customer's responsibility for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.

TYPHOON SERIES ZERO TURN RIDING MOWER LIMITED WARRANTY

Rhino warrants to the original purchaser of this new Zero Turn Riding Mower, purchased from an authorized Rhino dealer, that the equipment be free from defects in material and workmanship as follows (see dealer for complete details):

- for a period of three (3) years from the date of the retail sale to the original purchaser (the "Three Year Warranty"), but only as to the drive train, electromagnetic clutch, deck and cutter spindles; and
- for the entire length of ownership by the original purchaser ("Limited Lifetime Warranty"), but only as to the deck weldment which results in the deck not performing its function, in the sole opinion of Rhino. Malfunctions caused by corrosion are not covered by the Limited Lifetime Warranty.

For the Three Year Warranty and the Limited Lifetime Warranty, the obligation of Rhino to the purchaser is limited to the repair or replacement of defective parts, at the sole option of Rhino. NOTE: The Three Year Warranty covers parts and labor for the first two years and parts only during the third year.

The Three Year Warranty and the Limited Lifetime Warranty are referred to collectively in this document as the "limited warranty".

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Rhino dealer during regular working hours. Rhino reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

DISCLAIMER OF IMPLIED WARRANTIES & CONSEQUENTIAL DAMAGES

Rhino's obligation under this limited warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; cost of installation other than cost approved by Rhino; duty; taxes; charges for normal service or adjustment; loss of crops or any other loss of income; rental of substitute equipment, expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Rhino.

THIS LIMITED WARRANTY SHALL NOT APPLY:

1. To transportation to and from dealership or service calls made by dealers, ie, driving time, towing, pickup and delivery.
2. To vendor items which carry their own warranties, such as engines, batteries, tires, and tubes.
3. If the unit has been subjected to misapplication, abuse, misuse, negligence, fire or other accident.
4. If parts not made or supplied by Rhino have been used in connection with the unit, if, in the sole judgement of Rhino such use affects its performance, stability or reliability.
5. If the unit has been altered or repaired outside of an authorized Rhino dealership in a manner which, in the sole judgement of Rhino, affects its performance, stability or reliability.
6. To normal maintenance service and normal replacement items such as gearbox lubricant, hydraulic fluid, worn blades, or to normal deterioration of such things as belts and exterior finish due to use or exposure.
7. To expendable or wear items such as blades, chains, sprockets, belts, springs and any other items that in the company's sole judgement is a wear item.

NO EMPLOYEE OR REPRESENTATIVE OF RHINO IS AUTHORIZED TO CHANGE THIS LIMITED WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY RHINO'S SERVICE MANAGER,1020 S SANGAMON AVE. GIBSON CITY IL.60936

Record the model number, serial number and date purchased. This information will be helpful to your dealer if parts or service are required.

MAKE CERTAIN THE WARRANTY REGISTRATION HAS BEEN FILED WITH RHINO BY YOUR DEALER
1020 S. SANGAMON AVE. GIBSON CITY IL. 60936
WWW.SERVICE-RHINO.COM

MODEL NUMBER _____

SERIAL NUMBER _____

DATE OF RETAIL SALE _____

DEALER PREPARATION CHECK LIST

TYPHOON ZERO TURN RIDING MOWER

BEFORE DELIVERING MACHINE — The following check list should be completed. Use the Operator's Manual as a guide.

- ❒ 1. Engine has been serviced.
- ❒ 2. Battery fluid level is checked.
- ❒ 3. Low oil pressure warning buzzer checked for operation.
- ❒ 4. Operator interlock switches checked for operation.
- ❒ 5. Assembly completed.
- ❒ 6. All fittings lubricated.
- ❒ 7. Hydraulic Reservoir filled with oil.
- ❒ 8. All shields in place and in good condition.
- ❒ 9. Roll-over protective structure is installed and retractable seat belt functions properly.
- ❒ 10. All fasteners torqued to specifications given in Torque Chart.
- ❒ 11. All decals in place and readable. (See decal page.)
- ❒ 12. Overall condition good. (i.e. paint, welds)
- ❒ 13. Parking brake checked and adjusted, if necessary.
- ❒ 14. Steering checked and adjusted, if necessary.
- ❒ 15. Check tire pressure.
- ❒ 16. Operators manual has been delivered to owner and he has been instructed on the safe and proper use of the cutter.

Dealer's Signature _____

Purchaser's Signature _____

THIS CHECKLIST TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed above before delivery of this implement to the customer.

WARRANTY REGISTRATION AND DELIVERY REPORT

It is the responsibility of the Dealer to do the following:

- Complete the Warranty Registration and Delivery Report Online

Safety Alert Symbol

This Safety Alert Symbol means: **"ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!"**

This symbol is used to call attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol, carefully read the message that follows and heed its advice. Failure to comply with safety precautions could result in death or serious bodily injury.

Safety Signs *Signal Words*

The signal words **DANGER, WARNING, AND CAUTION** are used on the equipment safety signs. These words are intended to alert the viewer to the existence and the degree of hazard seriousness.

⚠ DANGER

White letters on **Red**

This signal word indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Black letters on **ORANGE**

This signal word indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury

It may also be used to alert against unsafe practices.

⚠ CAUTION

Black letters on **YELLOW**

This signal word indicates a potentially hazardous situation exist which, if not avoided, may result in minor or moderate injury.

It may also be used to alert against unsafe practices.

IMPORTANT SAFETY PRECAUTIONS

This symbol is used to call attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol, carefully read the message that follows and heed its advice. Failure to comply with safety precautions could result in serious bodily injury.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel in the operation, transport, maintenance and storage of equipment. Lack of attention to safety can result in accident, person al injury, reduction of efficiency and worst of all—loss of life. Watch for safety hazards and correct deficiencies promptly. Use the following safety precautions as a general guide to safe operations when using this machine. Additional safety precautions are used throughout this manual for specific operating and mainte nance procedures. Read this manual and review the safety precautions often until you know the limitations.

ACCIDENT PATTERNS TO AVOID

1. CONTACT WITH THE ROTATING BLADE - This accident usually happens when the operator is clearing the discharge chute of grass, (especially when the grass is wet), or when the operator adjusts the machine without turning it off and waiting for the blades to completely stop.

2. PROPELLED OBJECTS - Sticks, rocks, wires, and other objects can be propelled out through the discharge chute or from under the mower housing. Bystanders are particularly vulnerable.

3. GRASS DISCHARGE CHUTE - The mower shall not be operated without the grass discharge chute in its lowered position.

4. OVERTURNING - This happens when riding mowers are used on steep slopes, embankments or hills. The operator in these cases can come in contact with blades or sustain injuries during a fall.

5. MOWER RUNNING OVER THE VICTIM - This usually happens when a riding mower is driven in reverse. The accident victims are most often young children whom, unseen by the operator of the mower, were in the area being mowed.

WE SHARE YOUR DESIRE TO PROTECT YOURSELF, YOUR FAMILY, YOUR FRIENDS AND YOUR NEIGHBORS FROM ACCIDENTAL INJURY. OBSERVING AND ENFORCING THE FOLLOWING GUIDE LINES WILL HELP TO INSURE THE SAFETY OF EVERYONE.

SAFETY INSTRUCTIONS AND RECOMMENDATIONS

1. PEOPLE WHO OPERATE, SERVICE, OR ARE OTHERWISE ASSOCIATED with the Zero Turn Riding Mower should be trained in its proper use and warned of its dangers. Before operating, adjusting, or servicing the Zero Turn Riding Mower they should read and understand this entire manual and the engine manual.

2. AVOID CONTACT WITH MOVING PARTS. Keep hands and feet from under mowing deck and away from blades at all times. Turn engine (motor) off if you must unclog the discharge chute.

3. AVOID HILLS AND SLOPES. Use **EXTREME** caution when mowing and/or turning on slopes as loss of traction and/or tip-over could occur. Drive slower on slopes. **DO NOT** mow slopes greater than 15 degrees. Watch for ditches, holes, rocks, dips and rises, which change the operating angle. Keep away from drop-offs and steep banks. Avoid sudden starts when mowing uphill - mower may tip backwards. Loss of traction may occur going downhill - weight transfer to the front wheels may cause drive wheels to slip and cause loss of braking. **DO NOT** mow slopes when grass is wet - slippery conditions affect steering and reduce traction and braking. The operator is responsible for safe operation on slopes.

4. DISENGAGE POWER TO MOWER BEFORE BACKING UP. Do not mow in reverse unless absolutely necessary and then only after turning around and observing the entire area behind the mower. Go slowly. Most “running over victim” accidents occur in reverse.

5. BEGINNING OPERATORS SHOULD LEARN HOW TO STEER the Zero Turn Riding Mower before attempting to mow. Start with slow engine speed and drive without the blades engaged in open area until comfortable with the machine.

SAFETY CONTINUED

6. KNOW HOW TO STOP QUICKLY. Know the location and operation of every control, especially how to brake and how to disengage the mower blades.

7. DO NOT MOVE THE CONTROL LEVERS from forward position to reverse position rapidly. The speed and/or direction of travel is affected instantly by movement of the Control Levers.

8. DO NOT ALLOW CHILDREN TO OPERATE MOWER. Do not allow others who have not had instructions to operate mower. Do not operate the mower when children or others are in the area.

9. ALWAYS TURN ENGINE OFF AND REMOVE KEY before leaving mower to prevent children and inexperienced operators from starting the engine. Never leave the mower unattended with engine running. Always wait for all moving parts and all sounds to stop before leaving operator's seat. Always set the parking brake on an unattended mower.

10. WEAR STURDY, ROUGH-SOLED WORK SHOES AND CLOSE-FITTING TROUSERS AND SHIRTS. Never operate mower in bare feet, sandals or sneakers.

11. WEAR PERSONAL PROTECTIVE EQUIPMENT such as, but not limitied to, protection for eyes, ears, feet, hands and head when operating or repairing equipment. Do not wear loose clothing or jewelry that may catch on equipment moving parts.

12. NEVER CARRY PASSENGERS.

13. KNOW THE AREA YOU ARE TO MOW. Watch for hidden dangers such as rocks, roots, sticks, holes, bumps, and drop-offs, etc. Before mowing, pick up all debris in area to be mowed. Sharp and hard objects can be propelled at a high speed and can act like shrapnel. Walk through tall grass BEFORE MOWING to make sure there are no hidden dangers. Mow higher than desired in tall grass to expose any hidden objects and/or obstacles, clean the area, and then mow to the desired height.

14. BE SURE THE AREA IS CLEAR of other people before mowing. Stop machine if anyone enters the area.

15. NEVER REFUEL A MOWER INDOORS. Allow the engine time to cool before refueling. Unseen vapors may be ignited by a spark. Always clean up spilled gasoline. Never run the engine indoors in a garage or any other closed building. Allow engine to cool before storing in any enclosure. The engine exhaust and gasoline fumes are dangerous.

16. NEVER REMOVE THE FUEL CAP or add gasoline to a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Always make sure the gas cap is in place.

17. DO NOT SMOKE AROUND THE MOWER or the gasoline storage container. Gasoline fumes can easily ignite.

18. KEEP GASOLINE IN A WELL-VENTILATED AREA away from your living quarters and in tightly capped safety cans. Never store mower with gasoline in the tank inside a building where fumes may reach open flame or spark.

19. DISENGAGE BLADES, STOP ENGINE, ENGAGE PARKING BRAKE AND REMOVE IGNITION KEY before any servicing. Be sure all moving parts and all sounds have stopped. Let engine cool and disconnect the spark plugs so the engine cannot start by accident.

20. KEEP ALL NUTS, BOLTS, AND SCREWS TIGHT to be sure equipment is in safe working condition, especially blade bolts.

21. VEHICLE SHOULD BE STOPPED AND INSPECTED FOR DAMAGE after striking a foreign object and the damage should be repaired before restarting and operating the equipment. Stop immediately and check for damage or loose parts if mower should start vibrating.

22. DISENGAGE BLADES BEFORE DRIVING ACROSS WALKS or projecting objects or transporting.

23. KEEP SAFETY DEVICES AND GUARDS IN PLACE. If any of the safety switches become inoperable, have them repaired immediately.

24. DO NOT STEP OR STAND ON THE MOWER HOUSING. Step or stand only on the tread areas on the deck.

25. WATCH OUT FOR TRAFFIC near roadways and when crossing roads.

26. THIS MACHINE IS NOT MEANT FOR HIGHWAY OR STREET USE. It is not a recreational vehicle and it should not be operated as such.

27. WHEN FEASIBLE, DO NOT USE MOWER WHEN GRASS IS WET OR SLIPPERY.

28. MOW ONLY IN DAYLIGHT OR GOOD ARTIFICIAL LIGHT.

SAFETY CONTINUED

29. ALWAYS DISENGAGE THE MOWER BLADE CLUTCH when transporting.

30. Do not operate the mower under influence of drugs or alcohol.

31. Do not change the engine governor settings or overspeed the engine. Operating an engine at excessive speed may increase the hazard of personal injury.

TOWING

1. Use for towing only if equipped with a Rhino hitch kit. Do not attach towed equipment except at the hitch point.

2. Never allow children or others in or on towed equipment.

3. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.

4. Travel slowly and allow extra distance to stop.

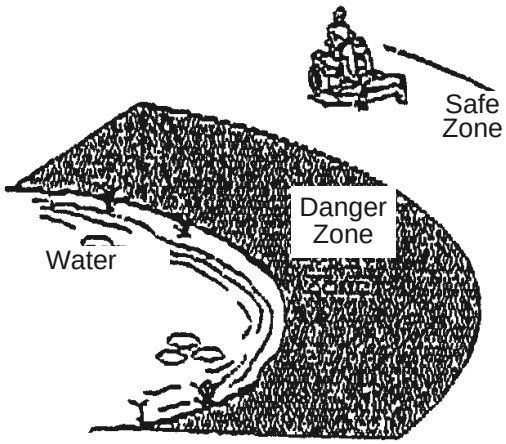
SLOPE OPERATION

⚠ DANGER

POTENTIAL HAZARD
Mowing on wet grass or steep slopes can cause sliding and loss of control.

WHAT CAN HAPPEN
Wheels dropping over edges, ditches, steep banks, or water can cause injury, or death by drowning.

HOW TO AVOID THE HAZARD
Do not mow slopes when grass is wet.
Do not mow near drop-offs or near water.
Do not mow slopes greater than 15 degrees.
Reduce speed and use extreme caution on slopes.
Avoid sudden turns or rapid speed changes.
Do not ride or operate the ZTR if th mower head has been removed.



1. Use EXTREME caution when mowing and/or turning on slopes as loss of traction and/or tip-over could occur. The operator is responsible for safe operation.

2. See inside of the back cover to determine the approximate slope angle of the area to be mowed.

3. Use a walk behind mower and/or a hand trimmer near drop-offs, ditches, steep banks or water. This area can be dangerous.

4. Progressively greater care is needed as the slope increases.

5. Always avoid sudden starting or stopping on a slope. If tires lose traction, disengage the blades and proceed slowly down the slope.

6. Avoid sudden starts when mowing uphill. Mower may tip backwards.

7. Be aware that loss of traction may occur going downhill. Weight transfer to the front wheels may cause drive wheels to slip and cause loss of braking and steering.

8. Watch for ditches, holes, rocks, dips, and rises that change the operating angle, as rough terrain could overturn the machine. Tall grass can hide obstacles.

9. Remove or mark obstacles such as rocks, tree limbs, etc. from the ,mowing area. Tall grass can hide obstacles.

10. Use extreme care with grass catches or attachments. These can change the stability of the machine and cause loss of control.

11. Follow the manufacturer's recommendations for counterweights to improve stability.

12.. Check carefully for overhead clearances (ie. branches, doorways, and electrical wires) before driving under objects and do not contact them.

SLOPE ANGLE GUIDE LOCATED INSIDE REAR COVER

IMPORTANT FEDERAL LAWS AND REGULATIONS* CONCERNING EMPLOYERS, EMPLOYEES AND OPERATIONS.

*(This section is intended to explain in broad terms the concept and effect of the following federal laws and regulations. It is not intended as a legal interpretation of the laws and should not be considered as such).

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

This Act Seeks:

"...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources..."

DUTIES

Sec. 5 (a) Each employer—

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA Regulations

Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved." These will include (but are not limited to) instructions to:

Keep all guards in place when the machine is in operation;

Permit no riders on equipment;

Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

Child Labor Under 16 Years Old

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)

INDUSTRIAL/
AGRICULTURAL MOWER

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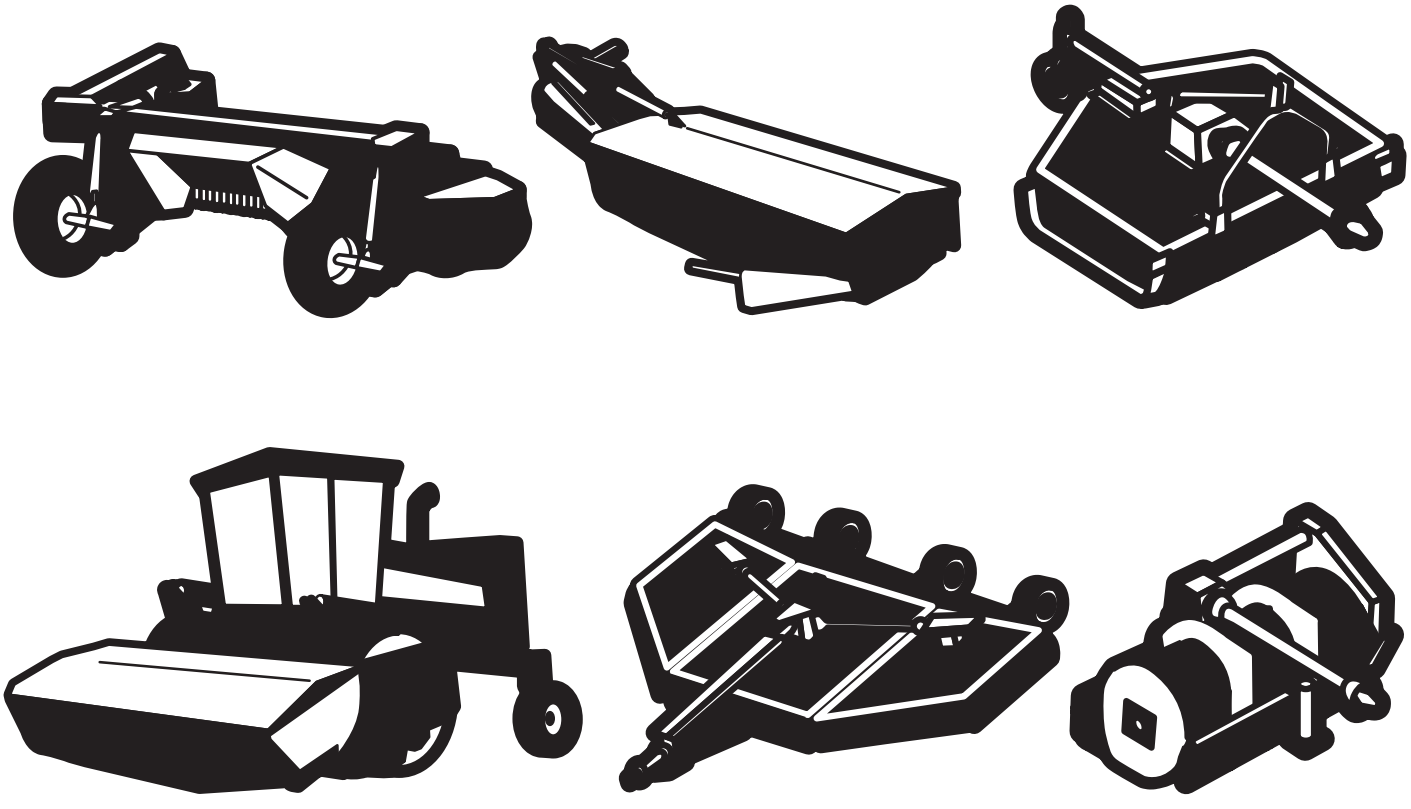
SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



FORM IAMSE-1009
Printed in U.S.A.

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Acknowledgment

We wish to acknowledge the contributions of the members of AEM's Industrial/Agricultural Mower Manufacturers Council to the preparation of this Safety Manual.

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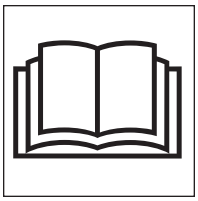
Revised 01/03, 09/10

Foreword

This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine and to instruct you in safety practices for dealing with these conditions. This manual is **NOT** a substitute for the mower manufacturer's operator's manual(s).

Additional precautions may be necessary, or some instructions may not apply, depending on equipment, attachments and conditions at the worksite or in the service area. The manufacturer has no direct control over equipment application, operation, inspection or maintenance. Therefore, it is **YOUR** responsibility to use good safety practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's operator's manual(s). Other information that may affect the safe operation of your machine may be contained on safety signs or in insurance requirements, employer's safety and training programs, safety codes, local, state/provincial and federal laws, rules and regulations.



Read and Understand Manuals Before Operating

IMPORTANT! Before you operate the mower, make sure you have the manufacturer's operator's manual(s) for this machine and all attachments. If the manufacturer's manuals are missing, obtain replacement manuals from your employer, equipment dealer or directly from the manufacturer. Keep this safety manual and the manufacturer's manuals with the machine at all times. Read and understand all manuals.

The AEM Mower Safety Practices video is available to train and reinforce good safety practices. Operators are encouraged to periodically view the safety video.

Safety Alerts

Symbol

This Safety Alert Symbol means: **"ATTENTION! STAY ALERT! YOUR SAFETY IS INVOLVED!"**

The Safety Alert Symbol identifies important safety messages on equipment, safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of death or personal injury. Follow instructions in the safety message.

Reasons Safety is Important:

— Accidents disable and kill.

— Accidents cost.

— Accidents can be avoided.

Signal Words

Signal words are distinctive words that will typically be found on safety signs on the mower and other worksite equipment. These words may also be found in this manual and the manufacturer's manuals. These words are intended to alert the operator to a hazard and the degree of severity of the hazard.

⚠ DANGER **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION **CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

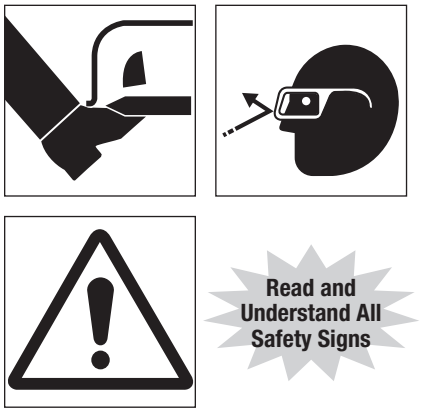
NOTICE **NOTICE** indicates a property damage message.

A Word To The User/Operator

It is **YOUR** responsibility to read and understand the safety manual and the manufacturer's manuals before operating this machine. This safety manual takes you step by step through your working day.

Hazard Recognition and Accident Prevention depend upon you being alert, careful and properly trained in the operation, transport, maintenance and storage of this equipment.

Graphics have been provided to help you understand the text.



Remember that **YOU** are the key to safety. Good safety practices not only protect you but also protect the people around you. Study and understand this manual and the manufacturer's manuals for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for industrial/agricultural mowers.

Contact the manufacturer of your equipment to answer any questions about safe operation that remain after studying the manufacturer's operator's manual(s) and this safety manual.

Practice all other usual and customary safe working precautions and above all:

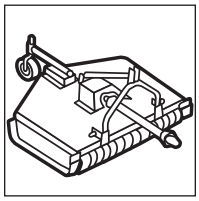
REMEMBER — SAFETY IS UP TO YOU!

YOU CAN PREVENT SERIOUS INJURY OR DEATH CAUSED BY UNSAFE WORK PRACTICES!

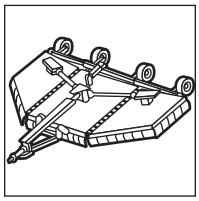
The Industrial/Agricultural Mower

Industrial/Agricultural Mower Types

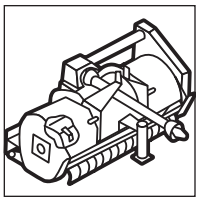
Mowers are used for pasture clipping, crop residue shredding, heavy brush cutting, waterways, right-of-ways, roadside or highway mowing. Also, these mowers are used for cutting grass and other growth in public areas such as parks and cemeteries.



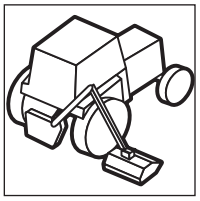
Rotary



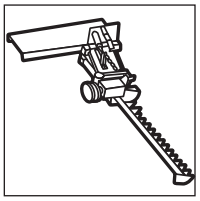
Folding Wing Rotary



Flail



Boom

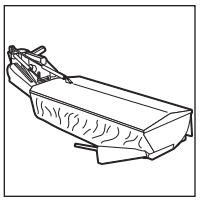


Sickle Bar

The Industrial/Agricultural Mower

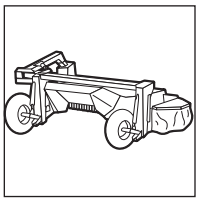
Agricultural Disc Mower Types

Disc mowers are designed and equipped to cut hay crops at higher field speed.



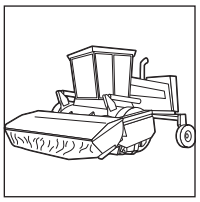
Disc Mower

Disc mower/conditioners mow and condition crops.



Disc Mower Conditioner

Self-propelled windrowers mow and form conditioned hay into windrows.



Self-propelled Windrower

Follow A Safety Program

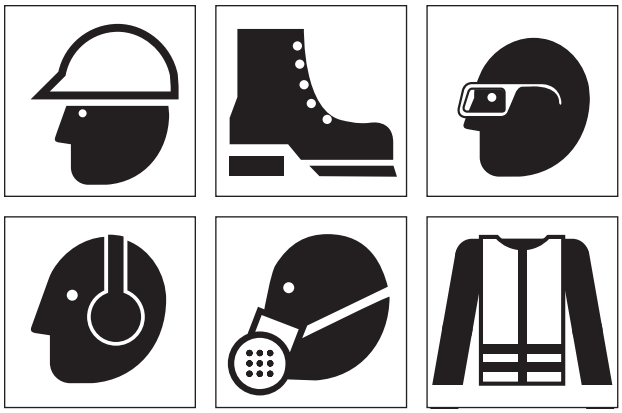
Protect Yourself

Wear personal protective clothing and Personal Protective Equipment (PPE) issued to you or called for by job conditions. You must **ALWAYS** wear safety glasses with side shields.

You may also need:
— Hard hat
— Safety shoes
— Safety goggles or face shield
— Heavy gloves
— Hearing protection
— Reflective clothing
— Wet weather gear
— Respirator or filter mask

Wear whatever is needed—don't take chances.

WARNING! Prevent death or serious injury from entanglement. **Do not wear loose clothing or accessories. Tie up long hair. Stay away from all rotating components when the engine is running.** Contact, wrapping or entanglement with rotating or moving parts could result in death or serious injury.



Follow A Safety Program

— Read, understand and follow the manufacturer's written instructions found in the operator's manual(s) and safety signs on mower and tractor.
— Have operational training with mower and tractor.
— Take advantage of training programs offered in your area.
— Ask your equipment dealer or supervisor to explain things you do not understand.
— Explain the written instructions in the operator's manual(s) and safety signs to those users or operators who cannot read.
— Inspect the mower and tractor daily before operating. Ensure all guards are in place and the equipment is operating properly.
— Never smoke while operating. Never fill the fuel tank with the engine running or near an open flame.
— Make sure you have adequate visibility and sufficient lighting.
— Know the pinch points and rotating parts. Awareness on your part can prevent accidents.
— Never attempt to operate the controls except from the operator's seat. Improperly controlled functions could produce unexpected machine movement and result in serious injury or death.
— Shut down the mower and tractor before dismounting. (See page 18, **Proper Equipment Shut Down Practices.**)

Follow A Safety Program

Avoid Injury From Raised Equipment

Avoid possible crushing injury from falling mower or other raised equipment.

Avoid Crushing – Block Up or Securely Support Mower

Before working near or under raised mower or equipment parts:

— Securely support or block up raised mower or equipment parts according to the operator's manual.
— Securely support, block up or lock up wings with approved locking devices or lower mower or equipment parts to the ground.
— Use transport locks when transporting mower on public roads.

Avoid Injury From High Pressure Fluid

Avoid fluid injection injury due to high pressure fluid leaks.

High Pressure Fluid Can Inject into the Body

If any fluid is injected into the skin, it must be removed within a few hours by a doctor familiar with this type of injury.

Fluid leaks under pressure may not be visible. When checking for leaks or working around pressurized systems:

— Read manufacturer's operator's manual(s) for recommended safety practices.
— Wear a face shield or safety goggles for eye protection.
— Use a piece of cardboard or wood to check for leaks; **DO NOT use your hands.**
— Relieve system pressure before disconnecting lines.
— Check for and repair damaged or leaking lines, pipes and hoses.
— Check for and tighten loose connections.
— Purge air from system before operating.

Follow A Safety Program

Avoid Injury From Fire And Explosion

Set the parking brake, shut the mower and tractor engine down and remove the key while filling the fuel tank. Use extra caution when fueling a hot engine. Never smoke while fueling. Avoid sparks by grounding the fuel nozzle against the filler neck.

The fumes in an empty fuel tank are explosive. Never weld or cut on fuel lines, tanks or containers.

Remove all trash or mowing debris from the machine daily or as needed. Keep debris away from engine, exhaust, slip clutches and other heat sources. Use spark arrestors, as appropriate, on the engine exhaust system. Make sure oily rags or other flammable material are not stored on the machine.

Check for fuel, oil or hydraulic fluid leaks. Repair the leaks and clean the machine before you operate it.

Ether/cold start fluid is flammable. Do not smoke when using ether/cold start fluid. Always follow the instructions on the can and in the manufacturer's operator's manual(s) for your mower. Do not use ether/cold start fluid if the engine is equipped with a glow plug or other type of preheater.

Always use a nonflammable solvent when you clean parts. Do not use gasoline, diesel fuel or other flammable fluids.

Store all flammable fluids and materials away from your machine and work area.

Know where fire extinguishers are kept—how they operate—and what type of fire they are for. Check readiness of fire extinguishers according to manufacturer's instructions. Make sure each tractor is equipped with a fire extinguisher.

No Smoking and No Open Flames

Remove Debris Daily or As Needed

Follow A Safety Program

Be Alert!

Know where to get assistance. Know how to use a first aid kit and fire extinguisher/fire suppression system.

Be Aware!

Take advantage of training programs offered.

Be Careful!

Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity of operator with the machine, drugs, and alcohol to name a few. Damage to the tractor or mower can be fixed in a short period of time, but injury, or death, has a lasting effect.

For your safety and the safety of others, encourage your fellow workers to act safely.

For Safe Operation

You must be a qualified and authorized operator for proper operation of your machine. You must clearly understand the written instructions supplied by the manufacturer, be trained—including actual operation of the mower—and know the safety rules and regulations for the worksite. It is a good safety practice to point out and explain safety signs and practices and ensure others understand the importance of following these instructions.

WARNING! Drugs and alcohol affect an operator's alertness and coordination and the operator's ability to safely operate the equipment. **Never use drugs or alcohol while operating the mowing equipment. Never knowingly allow anyone to operate this machine when their alertness or coordination is impaired.** An operator taking prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to safely operate this equipment.

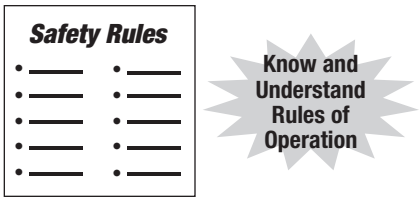
Follow A Safety Program

Know The Rules

Most employers have rules governing operation and maintenance of equipment. Before you start work at a new location, check with your supervisor or the safety coordinator. Ask about the rules you will be expected to obey.

The Occupational Safety and Health Administration (OSHA) enforces federal laws within the United States that apply to safe operation, application and maintenance of equipment on a worksite. It is the employer's responsibility to comply with these laws. An OSHA representative may periodically inspect a worksite to see that these laws are being followed.

There may also be local or state/provincial laws or international regulations that apply to this equipment and its use, along with specific worksite or employer rules. It is important that you know and comply with all applicable laws and rules, including those requiring operator training and certification.



These are some of the rules you must work by:

— A ROPS and seat belt-equipped tractor is a federal government (OSHA) requirement for operator protection during mowing operations. An enclosed cab provides additional operator protection from thrown objects. Check your mower operator's manual to see if a tractor cab is also required.
— Wear and check that others are wearing proper clothing and personal protective equipment.
— Inspect your machine and attachments before each use as specified by the manufacturer and your employer.
— Know the limitations and operating characteristics of your mowing equipment. Do not misuse it.
— Have all provided shields and guards properly installed before operating the machine.
— Never modify or remove any part of the machine (except for service—then make sure it is replaced).

Follow A Safety Program

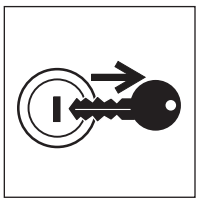
Some Rules You Must Work By (continued)

— Only qualified and authorized individuals may operate this equipment.
— **Never allow children** to **play** on, **ride** on or **operate** the equipment. Children **are not** qualified to operate this equipment.
— **Do not** allow **any** riders.
— Use three-point contact (handholds and steps) and face the equipment when mounting or dismounting.
— Keep bystanders 300 ft (92 m) from the mowing operation.
— Know the worksite before you use the mower. Be aware of possible terrain hazards that you may encounter. Remove or mark obstacles and debris that could damage or be thrown by the mower.
— Only use attachments and parts that are approved by the mower manufacturer.
— Make sure all attachments are lowered, set the parking brake, shut off the engine and cycle the control levers. Remove the key before leaving the tractor. (See page 18, **Proper Equipment Shut Down Practices.**)
— When transporting the mower on a trailer, follow the manufacturer's detailed instructions for loading, tying down and unloading the mower.

Keep Children Away from Equipment

Keep Bystanders Away

No Riders

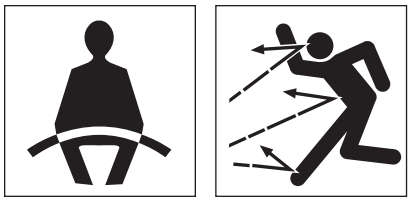


Shut Down Unattended Equipment

Follow A Safety Program

Know The Equipment

Read and understand the DANGER, WARNING, CAUTION and NOTICE safety signs and other informational signs on the tractor and mower and in the manufacturer's operator's manual. Ask your supervisor or mower dealer to explain any information you do not understand. Failure to obey safety instructions could result in death or serious injury.



Read and Understand All Safety Signs

Make sure all the manufacturer's protective structures, guards, shields, screens and panels are in good repair, in place and securely fastened. Damaged, missing or weakened safety components can create a hazardous situation for you as the operator. **Never** remove or modify any safety components including thrown object shielding on a mower.

Know the following about your tractor and mower:

— Function, purpose and use of all controls.
— Correct operation speeds.
— Slope and uneven terrain capabilities and proper operation.
— Braking and steering characteristics.
— Turning radius and clearances.
— How to quickly stop equipment in an emergency.

Read and Understand Manuals Before Operating

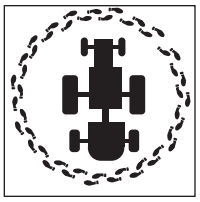
Prepare For Safe Operation

Check The Mower And Tractor Equipment

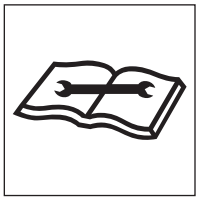
Before beginning your work day inspect the machine and have all systems in good operational condition.

WARNING! Prevent possible crushing injury from falling equipment. Hydraulic system or part failure could cause unsupported equipment to fall. **Do not go under raised equipment unless it is properly supported according to the operator's manual.**

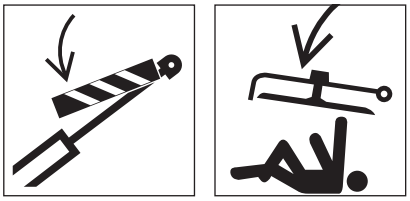
— Perform daily and periodic service procedures as instructed by the equipment manufacturer.
— Check for loose, broken, missing or damaged tractor and mower parts. Repair or replace these parts.
— Check for proper tractor and mower attachments.
— Check for proper tractor and mower PTO rpm rating match.
— Check mower blade(s) condition. Replace severely worn, bent, gouged or nicked blades including the blade bolts and fasteners. Never straighten or weld on blades.
— Ensure thrown object shielding is properly installed and in good condition. Repair or replace if damaged or missing.



Walk-Around Inspection



Maintain Machine



Read Manual – Block Up or Securely Support Mower

Prepare For Safe Operation

— Check that all guards and shields are in place and that all equipment is in good operating condition. This includes PTO driveline, gearbox and implement guards and shields that are used for operator protection.
— Check for properly latched driveline yoke-end locking devices.
— Check for damaged or leaky tractor and mower hydraulic systems. Repair or adjust as needed.

WARNING! Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious injury, blindness or death. Fluid leaks under pressure may not be visible. **Use a piece of cardboard or wood to find leaks, not your hand. Wear eye protection.** If fluid is injected into the skin, it must be removed within a few hours by medical personnel familiar with this type of injury.

— Keep the operator platform surface clean and free of grease, oil, dirt, snow or ice. Steps and handholds must be clean and functional.
— Ensure work lights are kept clean (if equipped). Check that all lights work properly.
— Ensure the slow moving vehicle (SMV) sign, reflectors and warning lights are in good condition and can be clearly seen.
— Ensure all tools or loose objects are removed or securely fastened while operating the machine.
— Check all safety signs for clarity. Replace damaged signs.

Check for Missing/ Damaged Guards and Shields

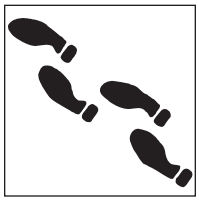
Check for Leaks and Inspect Hoses

Put Away Tools

Prepare For Safe Operation

Know The Work Area

Before you operate the mower thoroughly inspect the work area. Walk around the area and inspect the surfaces you will travel on when using the mower.



Walk Around the Worksite

Locate and avoid:

- Holes
- Drop-offs
- Obstacles (stumps)
- Excavations
- Standing water
- Deep mud
- Wet spots
- Soft soil
- Rough spots
- Power lines and apparatus
- Other utilities
- Any conditions which could cause collision, loss of control or tipover
- Steep slopes

Look for debris and obstacles by walking the area before you mow. Objects like wire, cable, rocks, tires, and metal objects that could damage or be thrown by the mower must be removed or marked clearly and avoided.

Correct unsafe conditions. Do not operate in problem areas where debris and obstacles cannot be removed or marked.

Analyze mowing area to determine:

- The most efficient mowing procedure.
- The height of the material to be mowed.
- Operating terrain conditions.
- How to best use forward mowing pattern.
- The potential for bystanders or passers-by to be exposed to thrown objects.

Remove or Mark Debris and Obstacles

Look Out For Others

Before starting equipment:

- Walk around the equipment.
- Check for anyone under, on or near the equipment.
- Clear everyone from these areas.
- Sound a warning.

Prepare For Safe Operation

Mount And Dismount Tractor Properly

Always use three-point contact when mounting or dismounting the tractor or mower. Face the machine when you enter or leave the machine. Three-point contact means that three out of four arms and legs are in contact with the machine at all times during mount and dismount.

Before mounting:

- Clean shoes and wipe hands. Clean steps and handholds of snow, ice, mud or oil.

During mounting and dismounting:

- Use handholds and step plates.
- Never grab steering wheels or controls for handholds.
- Never mount or dismount from a moving tractor.
- Never mount or dismount while carrying tools or objects that prevent three-point contact. Put parts or tools down. Maintaining proper contact, climb and then pick up the object.

Use Three-Point Contact

Clean Up Slippery Areas

Prepare For Safe Operation

Tractor And Mower Controls Safety Test

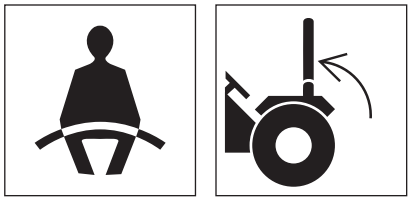
Start the tractor following the specific procedures in the manufacturer's operator's manual. These procedures normally include:

— Fasten and adjust seat belt on your ROPS-equipped tractor.
— Check parking brake for engagement.
— Check PTO disengagement.
— Check all controls for Park position.
— Warn others in area before starting tractor.
— Start tractor following tractor manufacturer's recommended starting procedures.

WARNING! Avoid serious injury or death from unexpected machine movement. **Start the engine only from the operator's position. Never attempt to start the engine by shorting across starter terminals or reaching the key from the ground or outside the cab.**

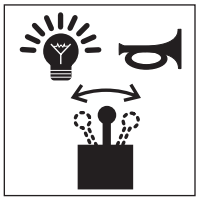
After starting:

— Check all instruments, gauges and indicator lights for normal operation.
— Check all tractor controls, steering and brakes for proper function.
— Raise and lower mower to check for driveline bottoming out or engagement problems.
— Check the equipment for excessive vibration and unusual noises.



Use ROPS and Seat Belt

Start Only from Operator's Seat



Check Instruments and Controls

Prepare For Safe Operation

— Use proper equipment shut down practices before inspecting equipment. Wait until all equipment motion has stopped before dismounting the tractor or mower.
— Do not operate mower unless tractor and mower are running properly. Place a "Do Not Operate" tag on the machine, remove the key and do not operate the mower until the problem is corrected.

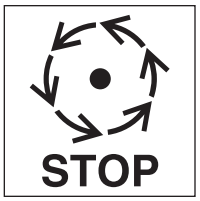
Power Takeoff System

Be sure to operate the tractor at the mower's rated PTO rpm speed.

When operating tractors with transmission-driven PTO systems, a rotary mower will have a significant flywheel effect. The mower may continue to propel a tractor with a transmission-driven PTO system.

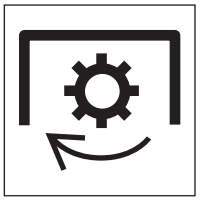
The tractor should be equipped and operated as follows:

— Install a driveline equipped with an over-running clutch.
— Give yourself sufficient maneuvering room and time by anticipating turns, stops and speed reductions.



Do Not Dismount Until Equipment Motion Has Stopped

Use a "Do Not Operate" Tag



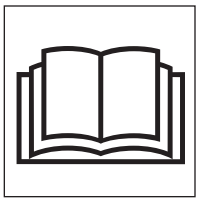
Use Proper PTO Speed

Prepare For Safe Operation

Hitching Mower To Tractor

Three-point hitch-mounted mowers:

— Refer to mower and tractor manufacturers' manuals.
— Place tractor's hydraulic power lift (rockshaft) selector lever in down position to avoid unexpected movement.
— Explain the hitching procedures to those operators who cannot read.
— Front-end weights may be needed to maintain steering control and front-end stability. Refer to the manufacturers' operator's manual(s).
— When backing the tractor up to the mower, NEVER allow anyone between the tractor and the mower.
— Attach the mower to the tractor three-point links and securely pin in position.
— Securely attach the driveline to the tractor PTO. Lower the master shield into place if it is movable. Push and pull on the driveline to ensure it is locked onto the PTO shaft.



Read and Understand Manuals Before Operating

Maintain Proper Weight Distribution

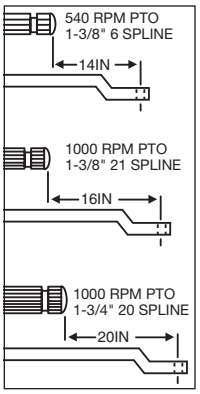
No One Allowed Between Tractor and Mower

Avoid Entanglement, Use Guards and Shields

Prepare For Safe Operation

Pull-type hitch-mounted mowers:

— Refer to mower and tractor manufacturers' manuals.
— Remove three-point hitch quick coupler if equipped.
— Attach only to drawbar hitch.
— Adjust tractor drawbar length for 540 or 1000 rpm PTO operation.
— When backing the tractor up to the mower, NEVER allow anyone between the tractor and the mower.
— Properly attach the mower safety tow chain to the tractor.
— Securely attach the driveline to the tractor PTO. Push and pull on the driveline to ensure it is locked onto the PTO. Lower the master shield into place.
— Hook up the mower hydraulic hoses to the tractor.
— Make sure the wings, or raised mower decks, are supported by the cylinders before removing the transport locks. Never use force to release the transport or wing locks. The wings or deck could fall and crush you.



Tractor Drawbar Adjustment

Confirm Wings Are Supported Before Releasing Locks

Avoid Entanglement, Use Guards and Shields

Start Safely

Make The Right Start

Mow only in daylight or good artificial light conditions.

Avoid serious injury or death from mower-thrown objects or blade contact:
— Keep chain shields, flexible or solid deflector shields or discharge chutes in place and in good repair.
— Keep bystanders at least 300 ft (92 m) from mowing operation.
— Never direct mower discharge toward anyone.
— Keep hands, feet and other body parts away from rotating parts, blades and discharge openings.
— Do not operate mower in transport position.

Do not approach a mower until all motion has stopped.

Mower PTO drive engagement:
— Raise mower to maximum cutting height.
— Engage PTO at low engine rpm.
— Increase engine rpm to mower's rated rpm PTO speed.
— Lower mower to desired cutting height.
— Stop and shut down immediately if the mower strikes an obstruction.
— Inspect and repair any mower damage before resuming mowing.
— Do not operate mower with severe vibrations or with unusual noise.

Rotating Blades – Keep Away

Do Not Operate a Damaged Mower

Mower-Thrown Objects

Depending on the designed purpose, mowers are designed to cut grass, weeds, brush and crops. The mower blades have been designed and tested for rugged use. The mower blades, however, are not intended to contact solid objects like rocks, concrete or metal. Such impact can cause broken objects to be thrown up to 300 ft (92 m). Bystanders should never be within 300 ft (92 m) of an operating rotary mower or within 100 ft (30 M) of a properly equipped disc mower.

Operate Safely

Mower shielding is designed to reduce the risk of thrown objects and must be properly maintained and in place during mowing operations.

The risk of serious injury or death from thrown objects can be significantly reduced by following three rules. **If all of these safety rules are not followed, the mowing operation must be stopped if anyone comes within the safety limit for the mower type.**

First — Inspect the area prior to mowing and remove stones, branches, wire, cable, metal, glass and other solid objects before operating. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator.

In non-crop areas with grass and weeds high enough to hide objects that could be struck by the blades, inspect the area and remove or mark large debris or obstacles.

Mow the area at an intermediate height. Inspect the area closely and remove or mark any remaining debris or obstacles. Mow again at desired final height.

Follow All Mower Safety Rules

Second — Mower-thrown object shielding must be used when operating near roads, parks, populated areas or other areas where thrown objects could injure bystanders or damage property. Follow the manufacturer's operator's manual.

Third — Cross diagonally when mowing through ditches, sharp dips, and drops. Raise the mower to prevent the mower blades from hitting the ground.

Operate Safely

Mower-Thrown Objects (continued)

Disc Mowers — When using a disc mower it is important to know the area to be mowed. If the operator has mowed the field before and is familiar with all obstacles that may be present, it is sufficient to watch ahead of the mower path for any additional objects that may have entered the field. Be ready to stop or avoid any objects that could be hazardous if thrown by the mower. If you plan to mow an unfamiliar field and it is next to a traveled road or people may be within 100 ft (30 m) of the mower you must inspect, and clean or mark the field.

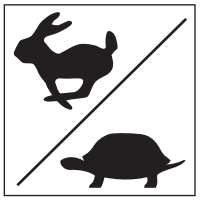
Mowing In Reverse

Do not mow while traveling in reverse. Objects are more likely to be thrown and can travel further.

Shut off the PTO, wait for the blades to stop turning, raise the mower, and then back up.

Mow traveling in the forward direction.

Do Not Mow in Reverse



Use Proper Ground Speed

Mowing Ground Speed

Proper ground speed depends on terrain conditions and grass type, density and height to be cut:
- — Normal ground speed range is 2 to 5 mph.
- — Use slower ground speed for mowing tall, dense grass.
- — Use faster ground speed for mowing medium height, thin grass and under smooth terrain conditions.
- — Use slower ground speed for mowing in rough, sloping or unfamiliar terrain.

Disc mowers are designed to use faster ground speeds for operating in fields clear of debris and surface hazards.

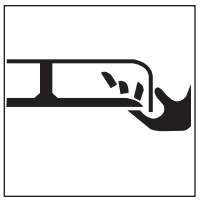
Operate Safely

Extremely Tall Grass Mowing

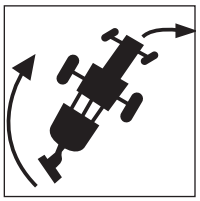
You may need to mow extremely tall, non-crop grass twice. (See page 13, **Mower-Thrown Objects.**)

First mowing pass:
- — Shut the mower and tractor down using proper equipment shut down practice before dismounting tractor. (See page 18, **Proper Equipment Shut Down Practices.**)
- — Inspect the area and remove or mark debris and obstacles.
- — Cut grass higher (10-15 inches) to avoid hidden objects.

Second mowing pass:
- — Shut the mower and tractor down using proper equipment shut down practice before dismounting tractor.
- — Inspect the area and remove or mark debris and obstacles.
- — Cut grass at desired height and, when possible, 90 degrees to the first mowing pass.



Stop Blade Before Unclogging



Provide Adequate Clearance for Mower Swing

Watch Equipment Clearances

Three-point hitch and side-mounted mowers have a larger turning arc than pull-type mowers. Allow sufficient clearance for mower swing while turning.

Do not allow bystanders near the tractor and mower when moving or transporting the tractor and mower.

Operate Safely

Under Mount Mower Safety Practices

When mowing with an under mount mower:

— Keep removable discharge chute in place and over discharge opening.

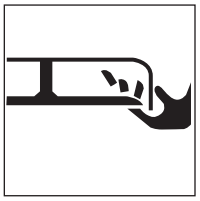
— Never stand on a mower housing when the tractor engine is operating.

— Distribute grass clippings with discharge chute facing mowed area.

— Before clearing a clogged mower or discharge chute, shut down your machine using proper equipment shut down practice. (See page 18, **Proper Equipment Shut Down Practices.**)

Never Stand on Mower – Keep Away

Keep Chute in Place



Stop Blade Before Unclogging

Operate Safely

Wing Or Boom Mower Overhead Obstruction Hazards And Risks

Check for overhead obstructions with raised wing or boom mowers to avoid serious injury or death by contact with:

— Electrical power lines and apparatus.

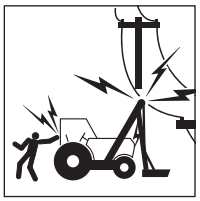
— Low tree limbs.

— Other overhead obstructions.

— Maintain specified distance from power lines and apparatus. Never approach energized power lines or apparatus with any part of your machine unless all local, state/provincial and federal (OSHA) required safety precautions have been taken. Use extreme caution.

DANGER! Avoid electrocution or serious injury from contact with or inadequate clearance to energized power lines or apparatus. **Do not allow the machine or attachment to approach or contact any power line. Do not approach or touch any machine in contact with a power line.**

Do Not Approach Energized Power Lines



Stay Clear of Energized Equipment

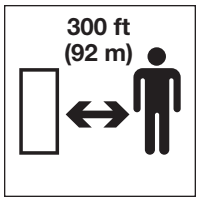
Operate Safely

Wing And Side Mount Mowers Safety Practices

Raised wing positions reduce shielding protection and increases the thrown object and blade contact hazard risks.

Avoid possible serious injury or death by thrown objects or blade contact from raising and lowering wings during mowing operations:

— Do not mow with bystanders within 300 ft (92 m) of the mower.
— Be sure no one is near mower while raising or lowering wings.
— Shut off the PTO and wait for all rotating elements to stop before raising the mower deck or wing section.
— Only raise wing to clear objects in the mowing path or to match ground slope.
— Lower raised wing to ground after clearing object or ground slope conditions.
— Stop mowing if anyone approaches within 300 ft (92 m) of mowing area.



Keep Bystanders Away from Mowing Area

Avoid Hitting Obstructions

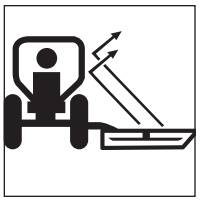
Ditch Bank Mowing Safety Practices

Use extreme care when mowing ditch banks. Watch for washouts, eroded areas and mowing obstructions along the ditch banks. Hitting obstructions with side-mount or boom mowers may swerve the tractor's front end toward the ditch.

Operate Safely

Raised wing and boom mower ditch bank operations may reduce the mower's thrown object shielding effectiveness for the mower operator's protection.

— Use enclosed ROPS cabs, special protective enclosures and other operator shielding available from the manufacturer when performing these operations.
— Inspect mowing area and remove or mark all foreign objects and debris to be avoided by mower.



Use Enclosed ROPS Cabs or Protective Enclosures

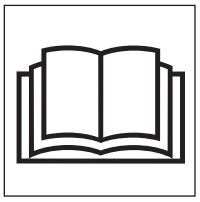
Uneven Terrain Mowing Safety Practices

Tractor and mower stability is reduced on slopes and uneven terrain.

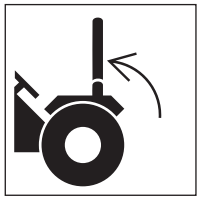
As in all conditions when mowing, use tractors equipped with ROPS and seat belt. **Make sure the ROPS are raised and locked in place and always wear your seat belt.**

Prevent tractor and mower overturns and maintain equipment stability control:

— Review tractor and mower operator's manuals for operating safety practices on slopes and uneven terrain conditions. Explain the practices to those users and operators who cannot read.
— Avoid extremely steep slope operations.



Read and Understand Manuals Before Operating



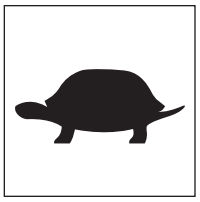
Use ROPS and Seat Belt

Operate Safely

Uneven Terrain Mowing Safety Practices (continued)

— Use extreme care to maintain control over the equipment when operating in these conditions.
— Increase tractor stability by adding wheel weights, ballast and increasing wheel spacing to maximum. Refer to operator's manual for recommendations.
— Maintain minimum ground speed.
— Make wide and gradual turns.
— Avoid sudden starts, stops, and turns when operating up, down, or across slopes.
— **Do not** raise rear-mount or side-mount mowers or mower wings from the ground during these operations.
— Keep alert for holes, bumps, ruts, rocks, stumps or other obstructions that could overturn the machine.
— Avoid slippery ground conditions that could cause loss of control and overturn of tractor and mower.
— Avoid bottoming and striking the ground by diagonal crossing of sharp dips and drops.

Use extreme care in maintaining equipment stability during all uneven terrain and slope mowing operations. You are the final judge as to any slope that can be safely negotiated.



Maintain Control, Use Low Speeds

Add Ballast, Widen Wheel Spacing

Avoid Ruts, Bumps, Holes

Operate Safely

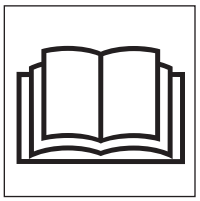
Road Transport Safety Practices

Before operating on public roads:
— Refer to tractor and mower manufacturers' operator's manuals for instructions.
— Explain the instructions to those users or operators who cannot read.
— Check local regulations for required equipment markings, lights, flashers, etc., while traveling on public roads. Lights are required on mowers that obscure tractor taillights and/or warning lights.
— When transporting the mower on a trailer, follow the manufacturer's detailed instructions for loading, tying down and unloading the mower.

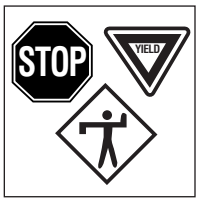
Before transporting on public roads:
— Disengage PTO power to mower.
— Raise mower into transport position and engage transport lock.
— Lock mower wings in the transport position with approved locking devices.
— Attach towing safety chain between pull-type mower and tractor.
— Make sure lights, warning lights and reflectors are in place and visible.
— Check SMV (Slow-Moving Vehicle) emblem for visibility to any rear-approaching vehicle.

While transporting on public roads:
— Obey all local traffic regulations.
— Approach intersections with caution.
— Observe speed and traffic control signs.
— Avoid panic stops and sharp turns.

Be a courteous operator and pull over periodically and allow traffic to pass.



Read and Understand Manuals Before Operating



Obey Traffic Regulations

Park Safely

Parking Safety Practices

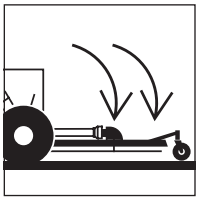
— Use designated or out-of-traffic areas.
— Use firm level ground locations.
— Set parking brake.
— Lower raised equipment to ground.

Shut down the mower and tractor using proper equipment shut down practice before dismounting tractor. (See page 18, **Proper Equipment Shut Down Practices.**)

Sloping ground parking locations:
— Position equipment across slope.
— Set parking brakes.
— Lower raised equipment to ground.
— Block tractor wheels.

Before temporarily parking and leaving disabled equipment near traffic areas:
— Remove equipment from public roads.
— Set out warning flags.
— Use tractor flashing warning lights.

Set Parking Brake



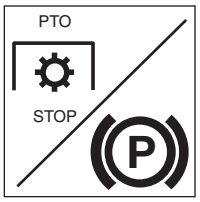
Lower Raised Equipment to Ground

Shut Down Safely

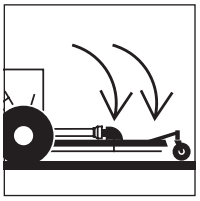
Proper Equipment Shut Down Practices

Make proper equipment shut down an important habit.

Properly shutting down a tractor and mower can prevent accidents from occurring when the mower is left unattended. Shut down the mower following the specific procedures in the manufacturer's operator's manual. These procedures will normally include:
— Reduce engine speed.
— Disengage PTO clutch and transmission drive.
— Idle engine for gradual cooling.
— Place all controls in PARK position.
— Set the parking brake.
— Lower mower to ground.
— Lower wings of wing mowers to ground.
— Shut off engine, lock ignition and remove key from the machine and take it with you.
— Wait for all moving parts to stop before dismounting.
— Relieve hydraulic pressure by moving hydraulic controls several times in all directions.
— Lock anti-vandalism covers and closures, if equipped, when equipment is unattended.
— Dismount carefully maintaining three-point contact.

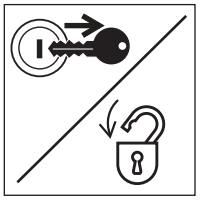


Disengage PTO, Set Brake



Lower Raised Equipment to Ground

Wait for Rotating Parts to Stop

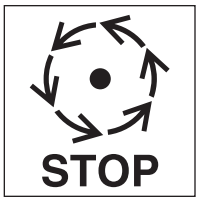


Remove Key, Lock Ignition, Take Key With You

Shut Down Safely

Dismounting Properly

— Never dismount from moving equipment.
— Never jump from any machines.
— Dismount carefully.
— Check for slippery steps.
— Keep feet and hands away from controls.
— Use handholds and steps during dismount.
— Face machine and use three-point contact (2 hands and 1 foot or 2 feet and 1 hand).



Wait for Moving Parts to Stop

Use Three-Point Contact, Face Machine

Perform Maintenance Safely

Maintain Your Equipment

Maintain Equipment

Be sure to maintain the equipment according to manufacturer's instructions. Regularly check the operation of the protective and safety devices.

Do not perform any work on a tractor or mower unless you are authorized and qualified to do so.

If you have been authorized to do maintenance, **read the operator's and service manuals.** Study the instructions; check the lubrication charts; examine all the instruction messages on the machine. Maintenance can be hazardous unless performed properly. Be sure you have the necessary skill, information, correct tools and equipment to do the job.

WARNING! Do not modify equipment or add components not approved by the manufacturer. Use parts, lubricants and service techniques recommended by the manufacturer.

Mower Parts And Your Safety

Mower manufacturers use specific fasteners and specially designed parts to meet mowing operations requirements. Critical parts (self-locking blade bolts, blades, pins, shields and other special items) have specific strength, design and fit requirements for the make and model mower you are using.

Avoid possible death or serious injury from unapproved parts or modifications:
— Do not substitute common hardware for original manufacturer's blade bolts or other special part items.
— Do not substitute for blades, pins, shields or other critical parts.
— Do not use higher strength bolts to replace original manufacturer's shear bolts.

Perform Maintenance Safely

Prepare Yourself

Wear personal protective clothing and Personal Protective Equipment (PPE) issued to you or called for by job conditions. You must **ALWAYS** wear safety glasses with side shields.

You may also need:
— Hard hat
— Safety shoes
— Safety glasses, goggles or face shield
— Apron and gloves
— Hearing protection
— Welding helmet or goggles
— Respirator or filter mask

Wear whatever is needed—don't take chances.

Keep hands—and clothing—away from all moving parts. Don't wear dangling ties, loose sleeves, rings, watches, or long hair.

WARNING! Prevent death or serious injury from entanglement. **Do not wear loose clothing or accessories. Stay away from all rotating components when the engine is running.** Contact, wrapping or entanglement with rotating or moving parts could result in death or serious injury.

Perform Maintenance Safely

Wear a rubber apron and rubber gloves when working with corrosives. Wear gloves and safety shoes when handling wooden blocks or sharp-edged metal.

Always use safety glasses, goggles or a face shield. They provide eye protection from fluids under pressure, during grinding and while servicing batteries. Protection is also needed from flying debris, liquids and loose material produced by equipment, tools and pressurized air/water.

Wear a face shield and follow manufacturer's instuctions when you disassemble spring-loaded components or work with battery acids. Wear a welding helmet or goggles with a shaded filter when you weld or cut with a torch.

Do not sand, grind, flame-cut, braze or weld without a NIOSH-approved respirator or appropriate ventilation. If welding is required on this machine, refer to the manufacturer's operator's or service manuals or consult your equipment dealer for proper procedures.

Keep pockets free of all objects that could fall out—and drop into machinery.

Handle tools and heavy parts sensibly—with regard for yourself and other persons. Lower items—don't drop them.

Prepare The Work Area

— Position the mower in a level area out of the way of other working equipment.
— Make sure there is adequate light, ventilation and clearance.
— Remove oil, grease or water to eliminate any slippery surfaces.
— Clean around the area to be serviced to minimize contamination.

Perform Maintenance Safely

Prepare The Machine

Stored energy sources (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) must be controlled or reduced to a practical minimum before performing any maintenance, repair or service procedures.

Safety practices to prevent potential injuries from energy-releasing sources:

— Disengage PTO before shutting off engine.
— Place controls in PARK or NEUTRAL before shutting off engine.
— Set parking brake or block wheels.
— Allow all moving parts to stop.
— Lower mower to ground.
— Lower wings to ground on wing mowers.
— Shut off tractor engine.
— Relieve hydraulic system pressure by moving controls several times in all directions.
— Lock ignition, remove key and take it with you.
— Look and listen for evidence of moving parts before dismounting.
— Securely support or block up mower before working underneath mower or other lifted components.
— Securely support, block up, or lock up mower wings with approved locking devices before working near or underneath a wing mower.
— Relieve pressure before disconnecting or disassembling any pressurized system.
— Block or relieve spring pressure before disassembling any spring-loaded mechanism.
— Securely support or block up any raised machine component before working on it.
— Avoid flames, sparks, or smoking near any fuel, hydraulic fluid or other flammable material such as mowing debris.

Prepare Machine Systems for Service

Perform Maintenance Safely

Attach a “DO NOT OPERATE” warning tag to the control levers and remove the ignition key if the mower should not be operated. Take the key with you.

Install approved support device(s) when working under or near raised equipment.

WARNING! Unsupported raised mowers or other equipment may drop unexpectedly. **Never go under equipment when raised unless supported by an approved support device(s).** Death or serious crushing injury could result from falling equipment.

Remove only guards or covers that provide access to the area being serviced. Replace all guards and covers when work is complete.

Use a “Do Not Operate” Tag

Use Approved Support Device

Replace All Guards

Perform Maintenance Safely

Use Proper Ventilation

If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension. If you do not have an exhaust pipe extension, make sure you open the doors and get outside air into the area.

WARNING! Prevent possible injury. **Never work on machinery with the engine running unless instructed by the manufacturer's manuals for specific service.**

WARNING! Never operate any type of engine without proper ventilation—EXHAUST FUMES CAN KILL.

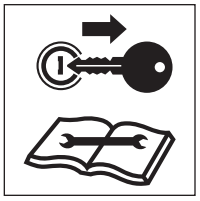
Use Jacks And Hoists Carefully

Safety stands or blocks must be located on a rigid part of the mower. Do not position stands under axles or wheel supports that may rotate.

If you must work beneath raised equipment, always use wood—**not concrete**—blocks, jack-stands or other rigid and stable supports. When using jacks or hoists always be sure they are adequately supported.

WARNING! Prevent possible crushing injury. **Never use concrete blocks for supports.** They can collapse under even light loads.

Make sure the hoists or jacks you use are in good repair. Never use jacks with cracked, bent, or twisted parts. Never use frayed, twisted or pinched cables. Never use bent or distorted hooks.



Remove Key and Read Maintenance Manual

Ventilate Work Area

Use Proper Support for Raised Equipment

Perform Maintenance Safely

Common Maintenance Safety Practices

Fuel Hazards

WARNING! Always use approved fuel containers and/or dispensing equipment.

Fuels are flammable, so observe these practices to reduce the possibility of a serious accident.

- — Shut off engine and ignition during refueling.
- — Always ground the fuel nozzle against the filler neck to avoid sparks.
- — Keep sparks and open flames away from fuel.
- — Do not smoke while refueling or when handling fuel containers.
- — Do not cut or weld on or near fuel lines, tanks or containers.
- — Do not overfill the tank or spill fuel. Clean up spilled fuel immediately.

Engine Coolant Hazards

Liquid cooling systems build up pressure as the engine gets hot, so **use extreme caution before** removing the radiator cap.

Be sure to:

- — Stop the engine and wait for the system to cool.
- — Wear protective clothing and safety glasses.
- — Turn the radiator cap slowly to the first stop to allow the pressure to escape before removing the cap completely.

No Smoking and No Open Flames

Remove Radiator Cap Slowly

Perform Maintenance Safely

Hydraulic System Hazards

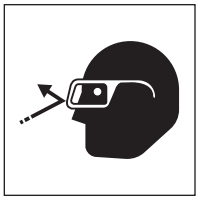
The hydraulic system is under pressure whenever the engine is operating and may hold pressure even after the engine is shut off. Cycle all hydraulic controls including the auxiliary hydraulic control after the engine is shut down. Relieve trapped pressure in the lines after the attachments are shut down and resting on the ground.

During inspection of the hydraulic system:
— Wait for fluid to cool before disconnecting the lines. Hot hydraulic fluid can cause SEVERE BURNS.
— **Do not** use your hand to check for leaks. Instead, use a piece of cardboard or paper to search for leaks.
— Wear appropriate eye protection. Hydraulic fluid can cause permanent eye injury.

WARNING! Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious injury, blindness or death. Fluid leaks under pressure may not be visible. **Use a piece of cardboard or wood to find leaks, not your hand. Wear a face shield or safety goggles for eye protection.** If fluid is injected into the skin, it must be removed within a few hours by medical personnel familiar with this type of injury.

When venting or filling the hydraulic system, loosen the filler cap slowly and remove it gradually.

Never reset any relief valve in the hydraulic system to a pressure higher than recommended by the manufacturer.



Perform Maintenance Safely

Electrical System Hazards

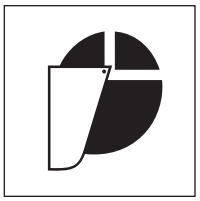
Before working on the electrical system, disconnect the battery cable(s).
— Remove the battery negative (-) cable(s) first.
— When reconnecting the battery, connect the battery negative (-) cable(s) last.

The liquid in batteries contains acid, which is a POISON and can cause SEVERE CHEMICAL BURNS.

Avoid Injury

— Wear a face shield to prevent contact with your eyes.
— Wear chemical-resistant gloves and clothing to keep electrolyte off your skin and regular clothing.

WARNING! Electrolyte will damage eyes or skin on contact. **Always wear a face shield to avoid electrolyte in eyes.** If electrolyte contacts eyes, flush immediately with clean water and get medical attention. **Wear chemical-resistant gloves and protective clothing to keep electrolyte off skin.** If electrolyte contacts exposed skin or clothing, wash off immediately with clean water. **If electrolyte is ingested,** seek medical attention immediately. NEVER give fluids that would induce vomiting.



Perform Maintenance Safely

Avoid Explosion

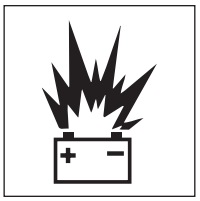
WARNING! Avoid possible serious injury from explosion. Lead-acid batteries produce extremely explosive gases especially when being charged. **Keep arcs, sparks, flames and lighted tobacco away.**

— **Do not** smoke near batteries.
— Keep arcs, sparks and open flames away from batteries.
— Provide adequate ventilation.

Never check the battery by placing a metal object across the battery posts — the resulting spark could cause an explosion.

WARNING! Avoid possible serious injury from battery explosion. **Do not charge a battery or boost start the engine if the battery is frozen.** Warm to 60°F (15.5°C) or the battery may explode and could cause serious injury.

Safety rules during battery boost starting:
— Follow the instructions for proper “battery boost starting” as specified in the manufacturer’s manual.
— Be sure the machines are not touching.
— Observe the polarity of the batteries and connections.
— Make the final cable connection to the engine or the furthest ground point away from the battery. Never make the final connection at the starter or dead battery—sparks may ignite the explosive gases present at the battery.
— When disconnecting cables after jump starting, remove the cables in reverse order of connection (e.g., final connection first).



Avoid Sparks and Open Flames Near Batteries

For Boost Starting Observe Polarity and Make Final Connection at Ground Point

Perform Maintenance Safely

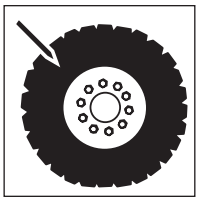
Tire And Wheel Maintenance

Check your tires and wheels daily because the stability of the tractor and mower can be dramatically affected by tire pressure or damage to tires or wheels.

Check tires for:
— Correct pressure.
— Cuts and bulges.
— Nails or other punctures.
— Uneven or excessive wear.
— Condition of valve stems and caps.

Check wheels for:
— Damage to the rims.
— Missing or loose lug nuts or bolts.
— Misalignment.

All tire service should be performed by a qualified tire service center or by an authorized service person who has been properly trained in the procedures and use of safety equipment designed for tire servicing.



Check Tires and Wheels for Damage

Maintain Proper Tire Pressure

Perform Maintenance Safely

Tire And Wheel Maintenance (continued)

WARNING! The types of wheels and tires usually found on this equipment require special care when servicing to prevent death or serious injury.

Do not inflate the tires above the recommended pressure. Be sure to replace tire ballast if equipped. See manufacturer's specifications for ballast requirements.

Keep wheel lug nuts tightened to manufacturer's recommendations.

A rise in tire pressure during operation is normal, and should NOT be reduced.

Never reinflate a tire that has been run flat or seriously underinflated without removing the tire from the wheel. Have the tire and wheel closely inspected for damage before remounting.

When adding air to a tire, do so from a distance. Use a long hose with self-attaching chuck. Always stand behind tread when adjusting tire pressure.

Do not inflate tires with flammable gases or from systems using an alcohol injector.

Never cut or weld on a wheel with an inflated tire mounted on it. This could cause explosive decompression.

Check that the tire size and wheel are correctly matched.

When replacing the tires, ensure the tires are of the appropriate rating specified by the manufacturer.

Tires should not be operated at speeds higher than their rated speed. Most agricultural tires are rated for 20mph maximum speed.

Perform Maintenance Safely

Complete Service And Repairs Before Machine Is Released

Tighten all bolts, fittings, and connections to torques specified by the manufacturer.

Install all guards, covers, and shields after servicing. Replace or repair any damaged parts. Refill and recharge pressure systems only with manufacturer approved or recommended fluids.

Start the engine and check for leaks. (See page 23, **Hydraulic System Hazards.**) Operate all controls to make sure the tractor and mower are functioning properly. Test the machine if necessary. After testing, shut down and check the work you performed. Are there any missing cotter pins, washers, locknuts, etc.? Recheck all fluid levels before releasing the equipment for operation.

All parts should be inspected during repair and replaced if worn, cracked or damaged. Excessively worn or damaged parts can fail and cause injury or death.

Replace any damaged or illegible safety signs.

Mower Blade Maintenance

Do not take chances using damaged or bent blades. The mower manufacturers from the Association of Equipment Manufacturers (AEM) and the Farm Equipment Manufacturers Association (FEMA) advocate that you DO NOT reuse, straighten, hard face or weld mower blades. Death or serious injury could result if a broken blade is thrown from a mower.

Perform Maintenance Safely

Mower Blade Maintenance (continued)

— **How are mower blades made?** Mower blades are made of high strength alloy spring steel. They are hot-forged and shaped to meet the manufacturer's individual specifications, then heat treated and tempered to a high strength, ductile state to reduce the possibility of breaking while mowing. Blades are tested to ensure they meet strength, hardness, and ductility standards. If a blade fails to meet any of these specifications, it will not be used on the mower.

— **What happens when a mower blade bends?** It takes a great amount of impact force to bend the blade. This impact force often results in the blades being gouged or chipped. After a blade is damaged by a gouge or chip a blade failure is much more likely to occur. When a blade is severely bent, a microscopic crack may be created in the blade. Straightening the blade does not remove or repair this crack, but may cause additional cracks. Additional stresses during mowing operations can result in an unexpected blade failure.

— **Avoid bending blades.** Help prevent mower blades from bending or cracking by avoiding contact with solid objects. Mower blades are intended to cut grass, shrubs, woody vegetation, and small trees and limbs. They are not intended to contact solid objects such as rocks, concrete, or steel posts. Inspect the area prior to mowing. Remove or clearly mark any solid objects and mow around them.

— **Replace damaged blades!** Inspect the mower blade(s) daily or after hitting any solid object. If a mower blade becomes damaged (bent, gouged, cracked) or worn more than 25 percent of the original size, it should be removed and replaced with a new blade. Always use the original manufacturer's blades. Aftermarket brand blades may not meet the mower manufacturer's strength, hardness and ductility requirements.

— **Do not take chances mowing with damaged or bent blades.** Using a damaged or straightened mower blade can result in the blade breaking and being thrown into the operator or a bystander causing death or serious injury. The price of a new blade is small compared to the potential for the serious injury that could result from a bent or broken blade being thrown from the mower.

Final Word To The User

You have just finished reading the AEM Industrial and Agricultural Mower Manual. It is impossible for this manual to cover every safety situation that you may encounter on a daily basis. Your knowledge of these safety precautions and your application to the basic rules of safety will help to build good judgment in all situations. Our objective is to help you develop, establish and maintain good safety habits to make operating an Industrial and Agricultural Mower easier and safer for you.

This manual is another in a series on the safe operation of machinery published by AEM.
Many pictorials in this safety manual can be found and downloaded at http://pictorials.aem.org.
For additional publications visit our website at www.safetymaterials.org.

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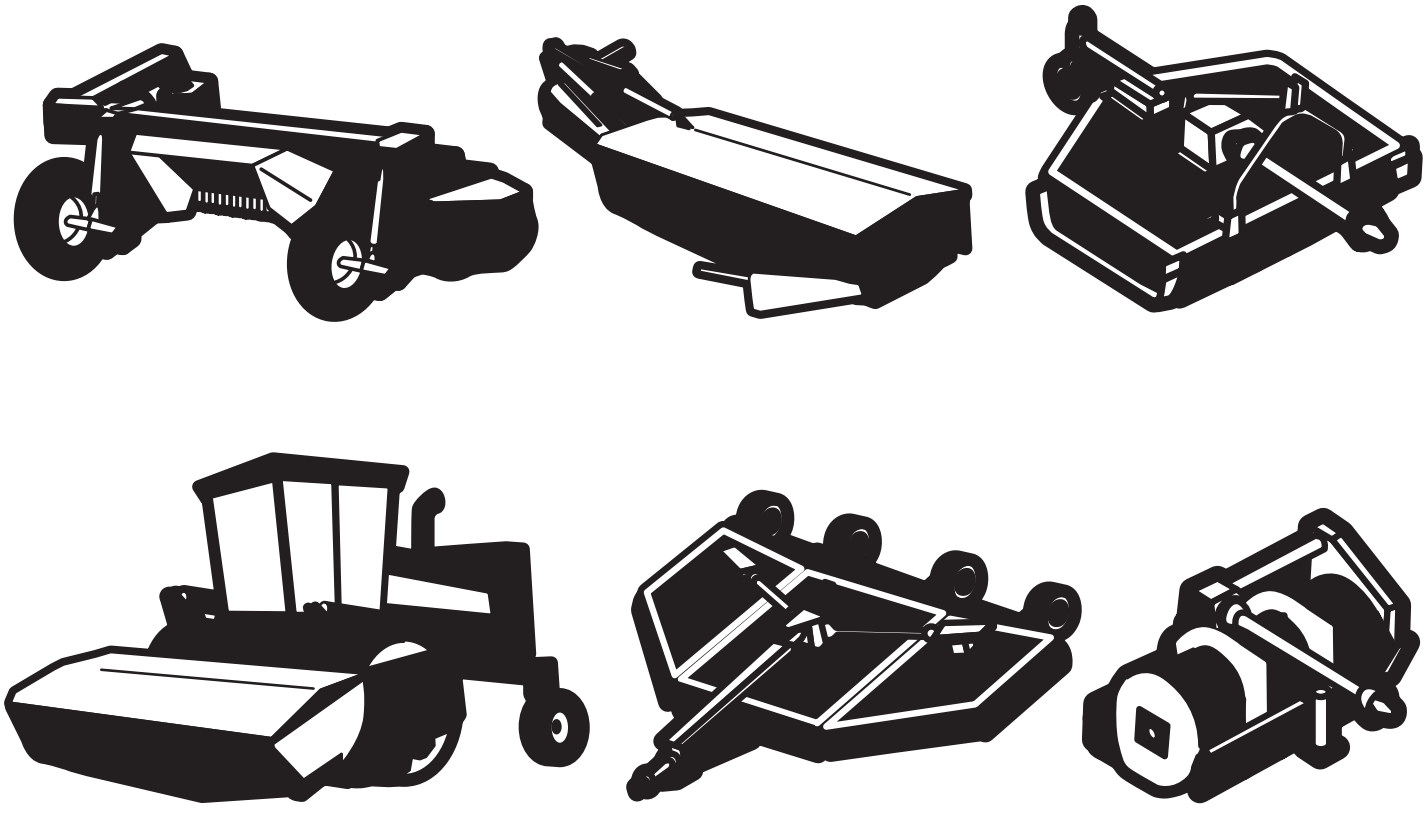
CORTADORA
DE CÉSPED INDUSTRIAL/
PARA AGRICULTURA

www.aem.org

MANUAL DE SEGURIDAD

PARA EL PERSONAL DE OPERACIONES Y MANTENIMIENTO



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Reconocimiento

Deseamos reconocer las contribuciones de los miembros del Consejo de Fabricantes de Cortadoras de Césped Industriales/para Agricultura para la preparación de este Manual de seguridad.

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Revisado el 01/03, 09/10

Introducción

Este manual de seguridad está destinado a señalar algunas de las situaciones de seguridad básicas que pueden surgir durante la operación y el mantenimiento normales de la máquina y a instruirlo en prácticas de seguridad para manejar estas condiciones. Este manual **NO** sustituye los manuales del operador del fabricante de la cortadora de césped.

Puede ser necesario tomar precauciones adicionales o algunas de las instrucciones pueden no ser pertinentes, dependiendo del equipo, los accesorios y las condiciones del sitio de trabajo o del área de servicio. El fabricante no tiene control directo sobre la aplicación, la operación, la inspección o el mantenimiento del equipo. Por lo tanto, es **SU** responsabilidad utilizar prácticas de seguridad correctas en estas áreas.

La información que se proporciona en este manual complementa la información específica sobre la máquina que contienen los manuales del operador del fabricante. Puede haber otra información que afecte la operación segura de la máquina en los letreros de seguridad o en los requisitos del seguro, programas de seguridad y capacitación del empleador, códigos de seguridad, leyes federales, locales, estatales o provinciales, reglas y ordenanzas.

Lea y asegúrese de comprender los manuales antes de comenzar la operación

¡IMPORTANTE! Antes de hacer funcionar la cortadora de césped, asegúrese de contar con los manuales del operador del fabricante para esta máquina y todos los accesorios. Si faltan los manuales del fabricante, solicite manuales de repuesto a su empleador, al concesionario de los equipos o directamente al fabricante. Guarde este manual de seguridad y los manuales del fabricante con la máquina en todo momento. Lea y asegúrese de comprender todos los manuales.

Se encuentra disponible el video AEM Mower Safety Practices (Prácticas de seguridad para la cortadora de césped de AEM) para capacitar y reforzar prácticas de seguridad correctas. Se alienta a los operadores a ver periódicamente el video de seguridad.

Alertas de seguridad

Símbolo

Este símbolo de alerta de seguridad significa:
“¡ATENCIÓN! ¡MANTÉNGASE ALERTA! ¡SU SEGURIDAD ESTÁ EN RIESGO!”

El símbolo de alerta de seguridad identifica mensajes de seguridad importantes sobre el equipo, sobre letreros de seguridad, en manuales u otros lugares. Cuando vea este símbolo, manténgase alerta ante la posibilidad de muerte o lesiones personales. Siga las instrucciones del mensaje de seguridad.

Motivos por los cuales la seguridad es importante:
— Los accidentes provocan discapacidad y muerte.
— Los accidentes cuestan.
— Los accidentes pueden evitarse.

Palabras indicativas

Las palabras indicativas son palabras distintivas que típicamente se encontrarán en letreros de seguridad de la cortadora de césped y otros equipos del sitio de trabajo. Estas palabras también se pueden encontrar en este manual y en los manuales del fabricante. Están destinadas a alertar al operador sobre un riesgo y el grado de gravedad del riesgo.

⚠ DANGER
PELIGRO
DANGER (PELIGRO) indica una situación riesgosa que, si no se evita, resultará en una lesión grave o la muerte.

⚠ WARNING
ADVERTENCIA
WARNING (ADVERTENCIA) indica una situación riesgosa que, si no se evita, podría resultar en una lesión grave o la muerte.

⚠ CAUTION
PRECAUCIÓN
CAUTION (PRECAUCIÓN) indica una situación que, si no se evita, podría resultar en lesiones leves o moderadas.

NOTICE
AVISO
NOTICE (AVISO) indica un mensaje de daños a la propiedad.

Palabras para el usuario/operador

Es **SU** responsabilidad leer y asegurarse de comprender el manual de seguridad y los manuales del fabricante antes de hacer funcionar esta máquina. Este manual de seguridad lo lleva paso a paso a través de su día de trabajo.

El reconocimiento de los riesgos y la prevención de accidentes dependen de que usted esté alerta, sea cuidadoso y se capacite correctamente para la operación, el transporte, el mantenimiento y el almacenamiento de este equipo.

Se han suministrado gráficos útiles para comprender el texto.

Recuerde que **USTED** es la clave de la seguridad. Las prácticas de seguridad correctas lo protegen no sólo a usted sino también a las personas que lo rodean. Estudie este manual y los manuales del fabricante para su máquina en particular. Transfórmelos en una parte activa de su programa de seguridad. Tenga presente que este manual de seguridad está escrito para cortadoras de césped industriales/para agricultura.

Contáctese con el fabricante del equipo si le queda alguna pregunta sobre la operación segura después de estudiar los manuales del operador del fabricante y este manual de seguridad.

Tome todas las demás precauciones habituales y acostumbradas para un trabajo seguro y, sobre todo:

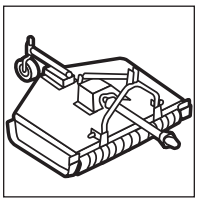
RECUERDE:
¡LA SEGURIDAD DEPENDE DE USTED!

¡PUEDE EVITAR LESIONES GRAVES O MUERTE CAUSADAS POR PRÁCTICAS LABORALES NO SEGURAS!

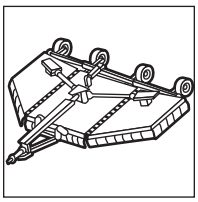
Cortadora de césped industrial/para agricultura

Tipos de cortadora de césped industrial/para agricultura

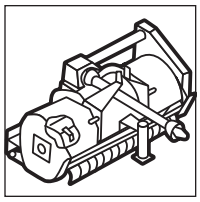
Las cortadoras de césped se usan para recortar pasturas, desmenuzar residuos de cultivos, cortar arbustos, realizar desbroce pesado, cortar la hierba en vías de agua, derechos de paso, costados de caminos o autopistas. Además, estas cortadoras se usan para cortar la hierba y otras plantas en zonas públicas como parques y cementerios.



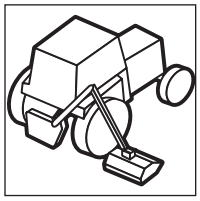
Giratorio



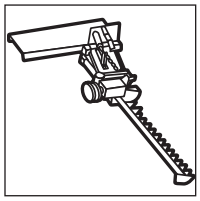
Giratorio con lateral plegable



Triturador



Aguilón

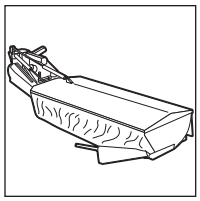


Barra en forma de hoz

Cortadora de césped industrial/para agricultura

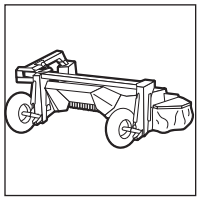
Tipos de cortadora de césped de disco para agricultura

Las cortadoras de césped de disco están diseñadas y equipadas para cortar cultivos de heno a mayor velocidad de desplazamiento.



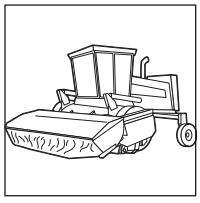
Cortadora de césped de disco

Las cortadoras/acondicionadoras de disco cortan y acondicionan los cultivos.



Cortadora/ acondicionadora de disco

Las formadoras de hileras autopropulsadas cortan el heno y lo acondicionan en hileras.



Formadora de hileras autopropulsada

Cumplimiento del programa de seguridad

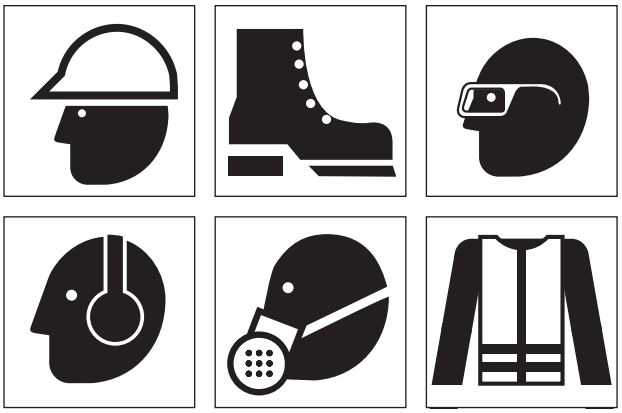
Protéjase a sí mismo

Use la ropa de protección personal y los equipos de protección personal (PPE) que se le proporcionen o que requieran las condiciones del trabajo. **SIEMPRE** debe usar gafas de seguridad con escudos laterales.

Puede necesitar también:
— Casco
— Calzado de seguridad
— Antiparras de seguridad o protección facial
— Guantes gruesos
— Protección para oídos
— Indumentaria reflectiva
— Indumentaria impermeable
— Respirador o máscara con filtro

Use la ropa necesaria; no corra ningún riesgo.

¡ADVERTENCIA! Evite lesiones graves o muerte por enredos. **No use ropa floja ni accesorios. Ate el cabello largo. Manténgase alejado de todos los componentes giratorios cuando el motor está en funcionamiento.** El contacto, el enrollado o el enredo con piezas giratorias o móviles podrían resultar en lesiones graves o la muerte.



Cumplimiento del programa de seguridad

— Lea, asegúrese de comprender y siga las instrucciones escritas del fabricante que se encuentran en el manual del operador y en los letreros de seguridad sobre la cortadora y el tractor.
— Obtenga capacitación para la operación de la cortadora y el tractor.
— Aproveche los programas de capacitación que se ofrecen en su zona.
— Solicítele al distribuidor de equipos o al supervisor que le explique cualquier información que no comprenda.
— Explique las instrucciones escritas de los manuales del operador y los letreros de seguridad a los usuarios u operadores que no puedan leerlas.
— Inspeccione la cortadora y el tractor diariamente antes de hacerlos funcionar. Asegúrese de que todas las guardas se encuentren en su lugar y de que el equipo funcione correctamente.
— Nunca fume mientras lo está manejando. Nunca llene el depósito de combustible con el motor en funcionamiento o cerca de una llama abierta.
— Asegúrese de tener visibilidad adecuada e iluminación suficiente.
— Sepa cuáles son los puntos donde puede quedar atrapado y las partes giratorias. Su conocimiento puede evitar accidentes.
— Nunca intente hacer funcionar los controles, excepto desde el asiento del operador. Las funciones controladas de manera incorrecta pueden producir el movimiento imprevisto de la máquina y resultar en lesiones graves o muerte.
— Apague la cortadora y el tractor antes de descender. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)

Lea, asegúrese de comprender y siga las indicaciones de los manuales y los letreros de seguridad

Evite las partes giratorias

Sepa cuáles son y evite los puntos donde pueda quedar atrapado

Cumplimiento del programa de seguridad

Evite las lesiones provocadas por equipos elevados

Evite posibles lesiones de aplastamiento por caídas de la cortadora u otros equipos elevados.

Evite ser aplastado – Bloquee o apoye con seguridad la cortadora

Antes de trabajar cerca o debajo de partes levadas de la cortadora o de los equipos:

— Apoye o bloquee con seguridad las partes elevadas de la cortadora o los equipos de acuerdo con el manual del operador.
— Apoye, bloquee o trabe con seguridad los laterales con dispositivos de bloqueo aprobados o descienda las partes de la cortadora o de los equipos hasta el suelo.
— Use trabas de transporte cuando transporte la cortadora por la vía pública.

Evite lesiones producidas por líquidos a alta presión

Evite las lesiones por inyección de fluidos debidas a fugas de líquidos a alta presión.

Si un fluido se inyecta en la piel, debe ser extraído dentro de pocas horas por personal médico familiarizado con este tipo de lesión.

Las fugas de fluido bajo presión pueden no ser visibles. Al verificar en busca de fugas o cuando trabaja cerca de sistemas presurizados:

— Lea las prácticas de seguridad recomendadas en los manuales del operador del fabricante.
— Use una protección facial o antiparras de seguridad para proteger los ojos.
— Use un cartón o una madera para buscar fugas; **NO use las manos.**
— Alivie la presión del sistema antes de desconectar líneas.
— Busque y repare las líneas, los tubos y las mangueras dañados o con fugas.
— Busque y apriete las conexiones flojas.
— Purgue el aire del sistema antes de hacerlo funcionar.

El fluido a alta presión puede inyectarse en el cuerpo

Cumplimiento del programa de seguridad

Evite lesiones por incendios y explosiones

Aplique el freno de estacionamiento, apague el motor de la cortadora y del tractor y retire la llave mientras llena el depósito de combustible. Tenga precaución adicional cuando carga combustible en un motor caliente. Nunca fume mientras carga combustible. Evite las chispas conectando a tierra la boquilla de combustible contra el cuello de llenado del depósito.

Los vapores de un depósito de combustible vacío son explosivos. Nunca suelde o realice cortes en líneas, depósitos o contenedores de combustible.

Retire toda la basura o los residuos de corte de la máquina todos los días o según sea necesario. Mantenga los residuos alejados del motor, el escape, los embragues y otras fuentes de calor. Use supresores de chispas, según corresponda, en el sistema de escape del motor. Asegúrese de que no haya trapos con aceite u otro material inflamable almacenado en la máquina.

Revise en busca de fugas de combustible, aceite o fluido hidráulico. Repare las fugas y limpie la máquina antes de hacerla funcionar.

El éter/fluido para arranque en frío es inflamable. No fume cuando usa éter/fluido para arranque en frío. Siempre siga las instrucciones del recipiente y de los manuales del operador del fabricante correspondientes a la cortadora de césped. No use éter/fluido para arranque en frío si el motor está equipado con bujías de precalentamiento u otro dispositivo de precalentamiento.

Siempre use solvente no inflamable para limpiar las partes. No use gasolina, combustible diesel u otros fluidos inflamables. Almacene todos los fluidos y materiales inflamables lejos de la máquina y de la zona de trabajo.

Sepa dónde se guardan los extintores de incendios, cómo funcionan y para qué tipo de incendio están destinados. Verifique la disponibilidad de los extintores de incendios de acuerdo con las instrucciones del fabricante. Asegúrese de que cada tractor esté equipado con un extintor de incendios.

No fumar; evitar las llamas abiertas

Retire los residuos a diario o según sea necesario

Cumplimiento del programa de seguridad

¡Manténgase alerta!

Sepa dónde obtener asistencia. Sepa cómo usar un equipo de primeros auxilios y un extintor de incendios/ sistema de supresión de fuego.

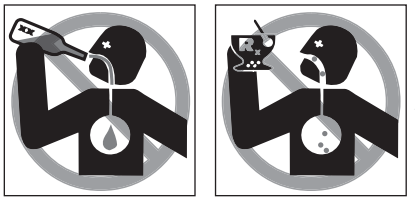
¡Manténgase informado!

Aproveche los programas de capacitación que se ofrecen.

¡Tenga cuidado!

El error humano es causado por muchos factores: descuido, fatiga, sobrecarga, preocupación, desconocimiento de la máquina por parte del operador, fármacos y alcohol, entre muchos otros. Los daños al tractor o la cortadora de césped se pueden arreglar en un tiempo breve, pero las lesiones o la muerte tienen un efecto perdurable.

Por su seguridad y la de los demás, aliente a sus compañeros de trabajo a actuar con seguridad.



Nunca use fármacos o alcohol mientras está operando la máquina

Para una operación segura

Usted debe ser un operador cualificado y autorizado para operar la máquina correctamente. Debe comprender claramente las instrucciones por escrito que proporciona el fabricante, recibir capacitación (que incluya la operación real de la cortadora de césped) y conocer las reglas y ordenanzas de seguridad correspondientes al sitio de trabajo. Una buena práctica de seguridad consiste en señalar y explicar los letreros y las prácticas de seguridad y asegurarse de que otras personas comprendan la importancia de seguir estas instrucciones.

¡ADVERTENCIA! Los fármacos y el alcohol afectan la capacidad de alerta y de coordinación del operador, así como su capacidad para operar los equipos con seguridad. **Nunca use fármacos o alcohol mientras opera el equipo de la cortadora. Nunca permita a sabiendas que otra persona opere esta máquina con la capacidad de alerta o coordinación deteriorada.** Un operador que toma un medicamento recetado o de venta libre debe consultar a un profesional médico con respecto a los efectos colaterales del medicamento que podrían reducir su capacidad de operar este equipo con seguridad.

Cumplimiento del programa de seguridad

Conozca las reglas

La mayoría de los empleadores tienen reglas que rigen la operación y el mantenimiento de los equipos. Antes de comenzar a trabajar en una ubicación nueva, verifique con el supervisor o con el coordinador de seguridad. Averigüe sobre las reglas que tendrá que obedecer.

La Administración de Seguridad y Salud Ocupacional (Occupational Safety and Health Administration, OSHA) hace cumplir leyes federales dentro de los EE.UU. que se aplican a la operación, la aplicación y el mantenimiento seguros de equipos en un sitio de trabajo. Es responsabilidad del empleador cumplir estas leyes. Un representante de OSHA puede visitar periódicamente un sitio de trabajo para ver si estas leyes se cumplen.

También puede haber leyes estatales/provinciales o locales u ordenanzas internacionales que se apliquen a este equipo y a su uso, junto con reglas específicas del sitio de trabajo o del empleador. Es importante que conozca y cumpla todas las leyes y reglas aplicables, incluso las que requieren capacitación y certificación del operador.

Las siguientes son algunas de las reglas que debe cumplir al trabajar:

— Un ROPS (sistema de protección antivuelco) y un tractor equipado con cinturón de seguridad es exigencia del gobierno federal (OSHA) par ala protección de los operadores durante el funcionamiento de la cortadora. Una cabina cerrada proporciona protección adicional para el operador con respecto a objetos arrojados. Verifique el manual del operador de la cortadora de césped para ver si también se requiere una cabina de tractor.
— Use y verifique que otras personas usen la indumentaria y los equipos de protección personal correctos.
— Inspeccione la máquina y los accesorios antes de cada uso según lo especificado por el fabricante y por su empleador.
— Conozca las limitaciones y las características operativas del equipo de corte de césped. No haga un uso indebido.
— Verifique que todos los escudos y las guardas estén correctamente instalados antes de hacer funcionar la máquina.
— Nunca modifique o retire partes de la máquina (excepto para realizar servicios; después, asegúrese de que se vuelvan a colocar en su lugar).

Sepa cuáles son y asegúrese de comprender las reglas de funcionamiento

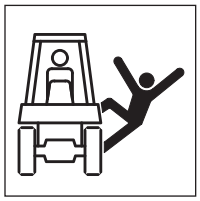
Cumplimiento del programa de seguridad

Algunas reglas que debe cumplir al trabajar (continuación)

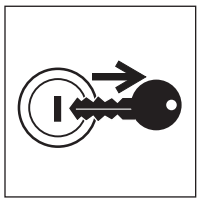
— Únicamente personas cualificadas y autorizadas pueden manejar estos equipos.
— **Nunca permita que los niños jueguen** en los equipos, **viajen** en ellos o los hagan **funcionar**. Los niños **no están** cualificados para manejar estos equipos.
— **No** transporte pasajeros.
— Use contacto en tres puntos (asideros y peldaños) y enfrente el equipo al ascender o descender de él.
— Mantenga a las personas ajenas a 300 pies (92 m) de la operación de corte.
— Familiarícese con el sitio de trabajo antes de usar la cortadora de césped. Tenga en cuenta posibles riesgos que puede encontrar en el terreno. Retire o marque los obstáculos y residuos que podrían dañar la cortadora o ser arrojados por ella.
— Utilice sólo accesorios y partes aprobados por el fabricante de la cortadora de césped.
— Asegúrese de que todos accesorios estén descendidos, aplique el freno de estacionamiento, apague el motor y haga funcionar todas las palancas de control. Retire la llave antes de salir del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)
— Cuando transporte la cortadora de césped en un remolque, siga las instrucciones detalladas del fabricante para la carga, el amarre y la descarga de la cortadora.

Mantenga a los niños alejados de los equipos

Mantenga a las personas ajenas alejadas



No lleve pasajeros



Apague los equipos cuando están sin vigilancia

Cumplimiento del programa de seguridad

Conozca los equipos

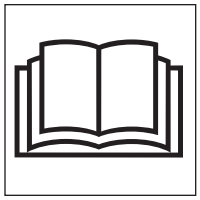
Lea y asegúrese de comprender los letreros de seguridad que indican PELIGRO, ADVERTENCIA, PRECAUCIÓN y AVISO y otros letreros informativos que hay sobre el tractor y la cortadora de césped y en el manual del operador del fabricante. Solicítele al supervisor o al distribuidor de la cortadora que le explique cualquier información que no comprenda. El incumplimiento de las instrucciones de seguridad podría resultar en lesiones graves o muerte.

Lea y asegúrese de comprender todos los letreros de seguridad

Asegúrese de que todas las estructuras de protección, guardas, escudos, pantallas y paneles del fabricante están bien reparados, en su lugar y bien ajustados. Los componentes de seguridad dañados, faltantes o debilitados pueden crear una situación de riesgo para usted como operador. **Nunca** retire o modifique ningún componente de seguridad (incluso escudos para objetos arrojados) que haya en la cortadora.

Conozca lo siguiente sobre el tractor y la cortadora de césped:

— Funcionamiento, propósito y uso de todos los controles.
— Velocidades de funcionamiento correctas.
— Capacidades y funcionamiento correcto en pendientes y terrenos desparejos.
— Características del frenado y la dirección.
— Radio de giro y separaciones.
— Cómo detener los equipos rápidamente en una emergencia.



Lea y asegúrese de comprender los manuales antes de comenzar la operación

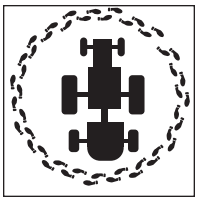
Preparación para una operación segura

Revise los equipos de la cortadora de césped y el tractor

Antes de comenzar la jornada de trabajo, inspeccione la máquina y asegúrese de que todos los sistemas estén en buenas condiciones operacionales.

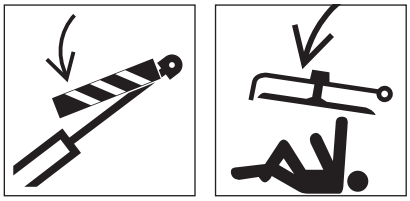
¡ADVERTENCIA! Evite posibles lesiones por aplastamiento producidas por equipos que caen. La falla del sistema hidráulico o de una parte podría causar la caída de equipos que no están apoyados. **No permanezca debajo de equipos elevados excepto que estén correctamente apoyados de acuerdo con el manual del operador.**

— Realice procedimientos de servicio diarios y periódicos según lo indicado por el fabricante del equipo.
— Verifique para detectar piezas faltantes, dañadas, rotas o flojas en el tractor y en la cortadora de césped. Repare o sustituya esas piezas.
— Verifique que los accesorios del tractor y la cortadora sean los correctos.
— Verifique que la clasificación nominal de velocidad de TDF del tractor y la cortadora sea la correcta.
— Verifique el estado de las hojas de la cortadora de césped. Sustituya las hojas que se encuentren gravemente gastadas, dobladas, agujereadas o marcadas; incluya los pernos y sujetadores de las hojas. Nunca enderece o suelde en las hojas.
— Asegúrese de que el escudo para objetos que son arrojados se encuentre correctamente instalado y en buen estado. Repárelo o sustitúyalo si está dañado o falta.



Recorrida de inspección

Realice el mantenimiento de la máquina



Lea el manual – Bloquee o apoye con seguridad la cortadora

Preparación para una operación segura

— Verifique que todos los escudos y guardas estén en su lugar y que todos los equipos se encuentren en buenas condiciones de funcionamiento. Esto incluye la línea motriz de la TDF, la caja de engranajes y las guardas y escudos de los implementos que se usan para proteger al operador.
— Verifique que los dispositivos de bloqueo del extremo en horquilla de la línea motriz estén correctamente enclavados.
— Verifique en busca de sistemas hidráulicos dañados o con fugas en el tractor o la cortadora. Repare o ajuste según sea necesario.

¡ADVERTENCIA! El fluido hidráulico bajo presión puede penetrar la piel o los ojos y causar lesiones graves, ceguera o la muerte. Las fugas de fluido bajo presión pueden no ser visibles. **Utilice un cartón o una madera para buscar fugas, no la mano. Use protección ocular.** Si el fluido se inyecta en la piel, debe ser extraído dentro de las próximas pocas horas por personal médico familiarizado con este tipo de lesión.

— Mantenga la superficie de la plataforma del operador limpia y libre de grasa, aceite, suciedad, nieve o hielo. Los peldaños y asideros deben estar limpios y funcionar correctamente.
— Asegúrese de que las luces de trabajo se mantengan limpias (si están instaladas). Verifique que todas las luces funcionen correctamente.
— Asegúrese de que el letrero de vehículo de movimiento lento, los y las luces de advertencia estén en buenas condiciones y puedan verse claramente.
— Asegúrese de que todas las herramientas y objetos sueltos se retiren o se sujeten con seguridad mientras se opera la máquina.
— Verifique que todos los letreros de seguridad se vean con claridad. Sustituya los letreros dañados.

Revise para detectar/guardas y escudos dañados

Verifique en busca de fugas e inspeccione las mangueras

Aparte las reflectores herramientas

Preparación para una operación segura

Familiarícese con la zona de trabajo

Antes de hacer funcionar la cortadora de césped, inspeccione cuidadosamente la zona de trabajo. Recorra a pie alrededor de la zona e inspeccione las superficies sobre las cuales se desplazará cuando utilice la cortadora.

Recorra a pie alrededor del lugar de trabajo

Localice y evite:

- Agujeros
- Desmoronamientos
- Obstáculos (tocones)
- Excavaciones
- Agua estancada
- Lodo profundo
- Puntos mojados
- Suelo blando
- Puntos irregulares
- Líneas y aparatos eléctricos
- Otros servicios públicos
- Cualquier condición que podría causar una colisión, pérdida de control o vuelco
- Pendientes empinadas

Busque residuos y obstáculos recorriendo a pie la zona antes de cortar. Los objetos como alambre, cable, rocas, neumáticos y metales que podrían dañar o ser arrojados por la cortadora de césped deben retirarse o marcarse claramente y evitarse.

Corrija las condiciones no seguras. No opere en áreas con problemas donde no se puedan retirar o marcar los residuos y los obstáculos.

Analice la zona de corte para determinar:

- El procedimiento de corte más eficiente.
- La altura del material que debe cortarse.
- Las condiciones operativas del terreno.
- Cómo usar mejor el patrón de corte en sentido de avance.
- Las posibilidades de que personas ajenas o que pasan circunstancialmente queden expuestas a objetos que se arrojan.

Retire o marque los residuos y obstáculos

Tenga cuidado con otras personas

Antes de poner en marcha los equipos:

- Recorra a pie alrededor de los equipos.
- Verifique en busca de personas debajo o cerca de los equipos.
- Retire a todas las personas de esas zonas.
- Haga sonar una advertencia.

Preparación para una operación segura

Ascienda y descienda del tractor correctamente

Siempre use contacto de tres puntos al ascender o descender del tractor o de la cortadora de césped. Enfrente la máquina al ingresar o salir de ella. Un contacto de tres puntos significa que tres de los cuatro miembros (brazos y piernas) están en contacto con la máquina en todo momento durante el ascenso y descenso.

Antes de ascender:

- Límpiese el calzado y las manos. Limpie la nieve, el hielo, el lodo o el aceite de los peldaños y asideros.

Durante el ascenso y el descenso:

- Use los asideros y los estribos.
- Nunca se aferre al volante o a los controles como asideros.
- Nunca ascienda o descienda de un tractor en movimiento.
- Nunca ascienda o descienda transportando herramientas u objetos que impidan el contacto de tres puntos. Deje en el piso las piezas o las herramientas. Manteniendo el contacto correcto, suba y, después, recoja el objeto.

Utilice contacto de tres puntos

Limpie las superficies resbaladizas

Preparación para una operación segura

Prueba de seguridad de los controles del tractor y de la cortadora de césped

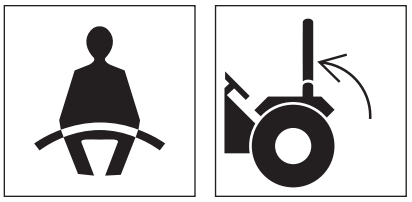
Arranque el tractor siguiendo los procedimientos específicos del manual del operador del fabricante. Estos procedimientos normalmente incluyen:

— Colóquese y ajústese el cinturón de seguridad en el tractor equipado con ROPS.
— Verifique que el freno de estacionamiento esté aplicado.
— Verifique que la TDF esté desenganchada.
— Verifique que todos los controles estén en la posición de estacionamiento.
— Advierta a otras personas en la zona antes de arrancar el tractor.
— Arranque el tractor siguiendo los procedimientos de arranque que recomienda el fabricante del tractor.

¡ADVERTENCIA! Evite lesiones graves o muertes producidas por el movimiento inesperado de la máquina. **Arranque el motor únicamente desde el puesto del operador. Nunca intente arrancar el motor haciendo un corto entre los bornes del arranque o tomando la llave desde el suelo o desde afuera de la cabina.**

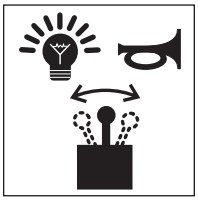
Después del arranque:

— Verifique que todos los instrumentos, indicadores y luces indicadoras funcionen normalmente.
— Verifique que todos los controles, la dirección y los frenos del tractor funcionen correctamente.



Use el ROPS y el cinturón de seguridad

Arranque únicamente desde el asiento del operador



Revise los instrumentos y controles

— Eleve y descienda la cortadora de césped en busca de problemas en el descenso total o el enganche de la línea motriz.
— Verifique los equipos en busca de vibraciones excesivas y ruidos anormales.

Preparación para una operación segura

— Use las prácticas correctas de apagado de los equipos antes de inspeccionar equipos. Espere hasta que todo movimiento de los equipos se haya detenido antes de descender del tractor o la cortadora de césped.
— No haga funcionar la cortadora si el tractor y la cortadora de césped no funcionan correctamente. Coloque una etiqueta que indique “No poner en funcionamiento” en la máquina, retire la llave y no haga funcionar la cortadora hasta que el problema se haya corregido.

Sistema de toma de fuerza (TDF)

Asegúrese de hacer funcionar el tractor a la velocidad de TDF indicada para la cortadora.

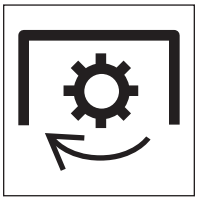
Al hacer funcionar tractores con sistemas de TDF impulsados por transmisión, una cortadora giratoria tiene un significativo efecto de rueda volante. La cortadora puede seguir propulsando un tractor con un sistema de TDF impulsado por transmisión.

El tractor debe estar equipado y funcionar como sigue:

— Instale una línea motriz equipada con un embrague de sobrecarga.
— Prevea suficiente espacio y tiempo para maniobrar anticipando los giros, las paradas y las reducciones de velocidad.

No descienda hasta que el movimiento de los equipos se haya detenido

Use una etiqueta que indique “No poner en funcionamiento”



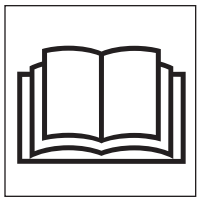
Use la velocidad de la TDF

Preparación para una operación segura

Enganche de la cortadora de césped al tractor

Cortadoras montadas en enganche de tres puntos:

— Consulte los manuales de los fabricantes de la cortadora y del tractor.
— Coloque la palanca selectora de elevación de potencia hidráulica del tractor en la posición descendida para evitar movimientos imprevistos.
— Explique los procedimientos de enganche a los operadores que no puedan leerlos.
— Pueden requerirse pesos en el extremo delantero para mantener el control de la dirección y la estabilidad del extremo delantero. Consulte los manuales del operador de los fabricantes.
— Al hacer retroceder el tractor hasta la cortadora de césped, NUNCA permita que haya personas entre tractor y la cortadora.
— Instale la cortadora en los eslabones de tres puntos del tractor y asegúrela en su lugar con pasadores.
— Instale con seguridad la línea motriz a la TDF del tractor. Descienda el escudo principal hasta su lugar si es móvil. Empuje y tire de la línea motriz para asegurarse de que esté trabada en el vástago de la TDF.



Lea y asegúrese de comprender los manuales antes de comenzar la operación

Mantenga una distribución correcta del peso

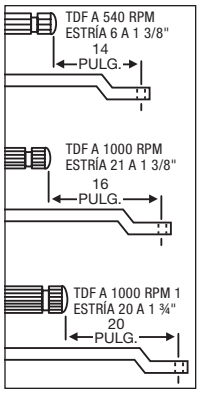
No permita que haya nadie entre el tractor y la cortadora de césped

Evite quedar enredado, use guardas y escudos

Preparación para una operación segura

Cortadoras montadas en enganche tipo de tiro:

— Consulte los manuales de los fabricantes de la cortadora y del tractor.
— Retire el acople rápido del enganche de tres puntos si está instalado.
— Instálelo únicamente al enganche de la barra de tiro.
— Ajuste la longitud de la barra de tiro del tractor para el funcionamiento de la TDF a 540 ó 1000 rpm.
— Al hacer retroceder el tractor hasta la cortadora de césped, NUNCA permita que haya personas entre tractor y la cortadora.
— Instale correctamente la cadena de remolque de seguridad de la cortadora en el tractor.
— Instale con seguridad la línea motriz a la TDF del tractor. Empuje y tire de la línea motriz para asegurarse de que esté trabada en la TDF. Descienda el escudo principal a su lugar.
— Conecte las mangueras hidráulicas de la cortadora de césped en el tractor.
— Asegúrese de que los laterales o las plataformas elevadas de la cortadora estén sostenidas por los cilindros antes de retirar las trabas de transporte. Nunca haga fuerza para soltar las trabas de transporte o de los laterales. Los laterales o la plataforma podrían caerse y aplastarlo.



Ajuste de la barra de tiro del tractor

Confirme que los laterales estén apoyados antes de soltar las trabas

Evite quedar enredado, use guardas y escudos

Arranque con seguridad

Cómo realizar un arranque correcto

Corte la hierba únicamente con luz diurna o en condiciones de buena luz artificial.

Evite lesiones graves o muerte producidas por objetos arrojados por la cortadora o por el contacto con las hojas:
- Mantenga los escudos de las cadenas, los escudos deflectores flexibles o sólidos y las rampas de descarga en su lugar y en buen estado de reparación.
- Mantenga a las personas ajenas a 300 pies (92 m) de la operación de corte.
- Nunca dirija la descarga de la cortadora hacia una persona.
- Mantenga las manos, los pies y otras partes del cuerpo alejadas de las piezas giratorias, las hojas y las aberturas de descarga.
- No haga funcionar la cortadora de césped en la posición de transporte.

No se acerque a una cortadora hasta que todo movimiento se haya detenido.

Enganche de la transmisión de RDF de la cortadora de césped:
- Eleve la cortadora hasta la altura de corte máxima.
- Enganche la TDF a baja velocidad del motor.
- Aumente la velocidad del motor hasta llegar a la velocidad nominal de la TDF.
- Descienda la cortadora hasta la altura de corte deseada.
- Detenga y apague de inmediato si la cortadora golpea contra una obstrucción.
- Inspeccione y repare cualquier daño de la cortadora antes de reanudar el corte.
- No haga funcionar una cortadora que vibra en exceso o produce ruidos anormales.

Hojas giratorias – Manténgase

No ponga en funcionamiento una cortadora de césped dañada

Objetos arrojados por la cortadora de césped

Dependiendo del propósito previsto, las cortadoras están diseñadas para cortar hierba, maleza, broza y cultivos. Las hojas de la cortadora están diseñadas y probadas para uso intensivo. Las hojas de la cortadora, sin embargo, no están diseñadas para entrar en contacto con objetos sólidos como rocas, cemento o metales. Un impacto de este tipo puede arrojar objetos rotos hasta 300 pies (92 m) de distancia. Nunca debe haber personas ajenas a menos de 300 pies (92 m) de una cortadora giratoria en funcionamiento o a menos de 100 pies (30 m) de una cortadora de disco correctamente equipada.

Operación con seguridad

Los escudos de la cortadora están diseñados para reducir el riesgo de objetos arrojados y se deben mantener correctamente y en su lugar durante las operaciones de corte.

El riesgo de lesiones graves o muerte puede reducirse significativamente si se siguen estas reglas. **Si no se siguen todas estas reglas de seguridad, la operación de corte debe detenerse en caso de que alguna persona ingrese dentro del límite de seguridad correspondiente a cada tipo de cortadora.**

Primero — Inspeccione la zona antes de cortar y retire las piedras, ramas, alambres, cables, metales, vidrios y otros objetos sólidos antes de hacer funcionar la máquina. Los objetos que no puedan retirarse deben marcarse con claridad y ser evitados con cuidado por el operador.

En áreas sin cultivos con hierba y maleza de altura suficiente como para ocultar objetos que podrían ser golpeados por las hojas, inspeccione la zona y retire o marque los residuos u obstáculos grandes.

Siga todas las reglas de seguridad

Realice el corte de la zona a una altura intermedia. Inspeccione la zona atentamente y retire o marque cualquier residuo u obstáculo restante. Corte nuevamente a la altura final deseada.

Segundo — Los escudos para objetos arrojados por la cortadora deben usarse cuando se opera cerca de caminos, parques, zonas pobladas u otras zonas donde objetos arrojados podrían lesionar a personas ajenas o dañar la propiedad. Siga el manual del operador del fabricante.

Tercero — Cruce en sentido diagonal cuando realiza el corte a través de zanjas, depresiones marcadas y hundimientos. Eleve la cortadora para evitar que las hojas de la cortadora golpeen el suelo.

Operación con seguridad

Objetos arrojados por la cortadora de césped (continuación)

Cortadoras de disco — Cuando se usa una cortadora de disco, es importante conocer la zona donde se va a cortar. Si el operador ha realizado cortes en el terreno antes y está familiarizado con todos los obstáculos que puede haber, es suficiente observar delante de la trayectoria de la cortadora para detectar cualquier objeto adicional que pueda haber ingresado en el terreno. Esté preparado para detenerse o evitar objetos que podrían ser peligrosos si son arrojados por la cortadora. Si piensa cortar en un terreno que no conoce bien y se encuentra junto a un camino transitado o puede haber personas a menos de 100 pies (30 m) de la cortadora de césped, debe inspeccionar y limpiar o marcar el terreno.

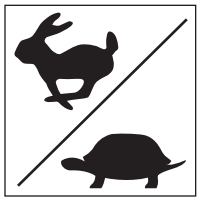
Cómo cortar en retroceso

No corte mientras se desplaza en retroceso. Es más probable que se arrojen objetos y que éstos puedan llegar más lejos.

No corte en retroceso

Apague la TDF, espere que las hojas dejen de girar, eleve la cortadora y, después, retroceda.

Corte desplazándose en sentido de avance.



Use la velocidad de desplazamiento correcta

Velocidad de desplazamiento durante el corte

La velocidad de desplazamiento correcta depende de las condiciones del terreno y del tipo de hierba, la densidad y la altura que debe cortarse:

— El rango normal de velocidad de desplazamiento es de 2 a 5 mph (3.2 a 8 km/h).
— Use una velocidad de desplazamiento menor para cortar hierbas altas y densas.
— Use una velocidad de desplazamiento mayor para cortar hierba delgada a altura media y con condiciones de terreno sin dificultades.
— Use una velocidad de desplazamiento menor par acortar en terreno irregular, con pendientes o no muy conocido.

Las cortadoras de disco están diseñadas para usar velocidades de desplazamiento mayores cuando funcionan en terrenos despejados de residuos y peligros superficiales.

Operación con seguridad

Corte de hierba extremadamente alta

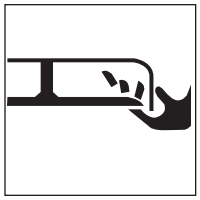
Puede ser necesario cortar dos veces la hierba extremadamente alta que no sea cultivo. (Consulte la página 13, **Objetos arrojados por la cortadora de césped**.)

Primera pasada de corte:

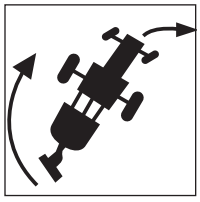
— Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos**.)
— Inspeccione la zona y retire o marque cualquier residuo u obstáculo.
— Corte la hierba a mayor altura (10 a 15 pulg. [25 a 38 cm]) para evitar los objetos ocultos.

Segunda pasada de corte:

— Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor.
— Inspeccione la zona y retire o marque cualquier residuo u obstáculo.
— Corte la hierba a la altura deseada y, de ser posible, a 90 grados con respecto a la primera pasada de corte.



Detenga la hoja antes de desatascar



Proporcione el espacio libre adecuado para la oscilación de la cortadora de césped

Preste atención a los espacios libres de los equipos

Las cortadoras con enganche de tres puntos y montaje lateral tienen un arco de giro mayor que las tipo de tiro. Deje el espacio libre suficiente para la oscilación de la cortadora cuando gira.

No permita que haya personas ajenas cerca del tractor y la cortadora de césped cuando mueve o transporta el tractor y la cortadora.

Operación con seguridad

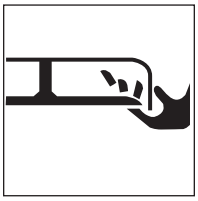
Prácticas de seguridad para la cortadora de césped de montaje inferior

Cuando se traslada con una cortadora de césped de montaje inferior:

— Mantenga la rampa de descarga extraíble en su lugar y por encima de la abertura de descarga.
— Nunca se pare sobre la carcasa de una cortadora de césped cuando el motor del tractor está en funcionamiento.
— Distribuya los recortes de hierba con la rampa de descarga orientada hacia la zona donde se cortó.
— Antes de limpiar una cortadora o una rampa de descarga atascada, apague la máquina usando la práctica correcta para apagado del equipo. (Consulte la página 18, **Prácticas correctas de apagado de los equipos**.)

Nunca se pare sobre la cortadora de césped – Manténgase alejado

Mantenga la rampa en su lugar



Detenga la hoja antes de desatascar

Operación con seguridad

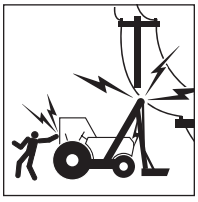
Cortadora de césped con lateral o aguilón Peligros y riesgos de obstrucciones elevadas

Verifique en busca de obstrucciones elevadas con las cortadoras que tienen el lateral o el aguilón elevado, para evitar lesiones graves o la muerte por contacto con:

— Líneas y aparatos eléctricos.
— Ramas bajas de los árboles.
— Otras obstrucciones elevadas.
— Mantenga las distancias especificadas con respecto a los cables y los aparatos eléctricos. Nunca se acerque a cables o aparatos eléctricos energizados con ninguna parte de la máquina, salvo que se hayan tomado todas las precauciones de seguridad locales, estatales/provinciales y federales (OSHA) necesarias. Use extrema precaución.

¡PELIGRO! Evite la electrocución o lesiones graves por contacto o un espacio libre inadecuado con respecto a líneas o aparatos eléctricos energizados. **No permita que la máquina o el accesorio se acerque o entre en contacto con una línea de electricidad. No se acerque ni toque una máquina que esté en contacto con una línea de electricidad.**

No se acerque a líneas de electricidad energizadas



Manténgase alejado de los equipos energizados

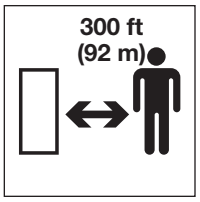
Operación con seguridad

Prácticas de seguridad para cortadoras de césped con laterales y montaje lateral

Las posiciones elevadas de los laterales reducen la protección de los escudos y aumentan los riesgos de objetos arrojados y contacto con las hojas.

Evite la posibilidad de lesiones graves o muerte por objetos arrojados o contacto con las hojas causados por la elevación y el descenso de los laterales durante las operaciones de corte:

— No realice cortes con personas ajenas presentes a menos de 300 pies (92 m) de la cortadora de césped.
— Asegúrese de que no haya personas cerca de la cortadora mientras se elevan o descienden los laterales.
— Apague la TDF y espere hasta que todos los elementos giratorios se hayan detenido antes de elevar la plataforma o la sección lateral de la cortadora.
— Únicamente eleve el lateral para quitar objetos de la trayectoria de corte o para acompañar una pendiente del terreno.
— Descienda hasta el suelo el lateral elevado una vez que se eliminó el objeto o se superó la pendiente.
— Detenga el trabajo de corte si alguna persona se acerca a menos de 300 pies (92 m) de la zona de corte.



Mantenga a las personas ajenas alejadas de la zona de corte

Evite golpear obstrucciones

Prácticas de seguridad para trabajos de corte en orillas de zanjas

Use extremo cuidado al realizar cortes en orillas de zanjas. Preste atención a escurrimientos, zonas erosionadas y obstrucciones para el corte a lo largo de las orillas de zanjas. Si se golpean obstrucciones con cortadoras de montaje lateral o con aguilón, el extremo delantero del tractor puede desviarse hacia la zanja.

Operación con seguridad

Los trabajos en orillas de zanjas con aguilón y lateral elevado pueden reducir la eficacia de la protección del operador de la cortadora que proporcionan los escudos para objetos arrojados.

Utilice cabinas cerradas con ROPS o cerramientos de protección

— Cuando realice estas operaciones, use cabinas cerradas con ROPS, cerramientos protectores especiales y otros escudos para el operador que ofrece el fabricante.
— Inspeccione la zona de corte y retire o marque todos los objetos extraños y los residuos que deberá esquivar la cortadora.

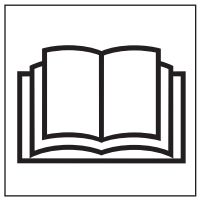
Prácticas de seguridad para trabajos de corte en terrenos desparejos

Las pendientes y los terrenos desparejos reducen la estabilidad del tractor y de la cortadora.

Como en todas las condiciones de corte, use tractores equipados con ROPS y cinturón de seguridad. **Asegúrese de que el ROPS está elevado y trabado en su lugar y use siempre el cinturón de seguridad.**

Prevenga los vuelcos del tractor y de la cortadora de césped y mantenga controlada la estabilidad de los equipos:

— Repase los manuales del operador del tractor y de la cortadora para ver las prácticas de seguridad para operaciones en pendientes y terrenos desparejos. Explique las prácticas a los operadores que no puedan leerlas.
— Evite trabajar en pendientes extremadamente empinadas.



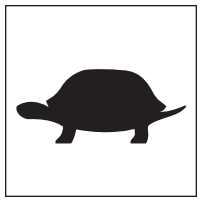
Lea y asegúrese de comprender los manuales antes de comenzar la operación

Use el ROPS y el cinturón de seguridad

Operación con seguridad

Prácticas de seguridad para trabajos de corte en terrenos desparejos (continuación)

— Use extremo cuidado para mantener el control de los equipos cuando trabaja en estas condiciones.
— Aumente la estabilidad del tractor agregando pesos o lastre en las ruedas y aumentando al máximo la separación entre las ruedas. Consulte las recomendaciones en el manual del operador.
— Mantenga la velocidad de desplazamiento en el mínimo.
— Realice giros amplios y graduales.
— Evite los arranques, las paradas y los giros bruscos cuando trabaje en subidas o bajadas de pendientes o sobre ellas.
— **No** levante del suelo las cortadoras de montaje trasero o de montaje lateral ni los laterales de la cortadora durante estas operaciones.
— Manténganse alerta en busca de agujeros, baches, pozos, tocones u otras obstrucciones que podrían hacer volcar la máquina.
— Evite las condiciones de suelo resbaladizo que podrían causar la pérdida de control y el vuelco del tractor y la cortadora.
— Evite bajar completamente y golpear el suelo cuando cruza en sentido diagonal depresiones marcadas y hundimientos.



Mantenga el control, desplácese

Agregue lastre, ensanche la separación entre las ruedas

Evite los pozos, baches y agujeros

Use extremo cuidado al mantener la estabilidad de los equipos durante todos los trabajos de corte en terrenos desparejos y pendientes. Usted es quien juzga en última instancia si en cualquier pendiente se puede trabajar con seguridad.

Operación con seguridad

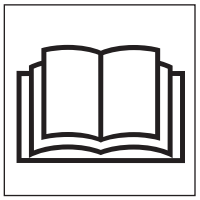
Prácticas de seguridad para el transporte en caminos

Antes de operar en la vía pública:
— Consulte los manuales del operador de los fabricantes de la cortadora y del tractor para ver instrucciones.
— Explique las instrucciones a los usuarios u operadores que no puedan leerlas.
— Verifique las ordenanzas locales sobre marcas, luces, balizas, etc. requeridas en los equipos durante el desplazamiento por la vía pública. Se requieren luces en las cortadoras que obstaculizan la visibilidad de las luces traseras y/o las luces de advertencia del tractor.
— Cuando transporte la cortadora de césped en un remolque, siga las instrucciones detalladas del fabricante para la carga, el amarre y la descarga de la cortadora.

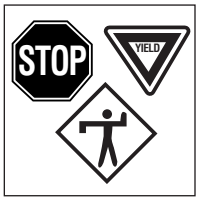
Antes de transportar en la vía pública:
— Desconecte la alimentación de la TDF a la cortadora.
— Eleve la cortadora a la posición de transporte y aplique la traba para transporte.
— Trabe los laterales de la cortadora de césped en la posición de transporte con dispositivos de bloqueo aprobados.
— Instale una cadena de seguridad para remolque entre la cortadora tipo de tiro y el tractor.
— Asegúrese de que las luces, las luces de advertencia y los reflectores están en su lugar y son visibles.
— Verifique que el emblema de vehículo de movimiento le resulte visible a cualquier vehículo que se aproxime por atrás.

Durante el transporte en la vía pública:
— Obedezca todas las ordenanzas de tránsito locales.
— Acérquese a las intersecciones con precaución.
— Observe los letreros de velocidad y control del tránsito.
— Evite las paradas de emergencia y los giros cerrados.

Sea un operador amable y apártese periódicamente para dejar pasar el tránsito.



Lea y asegúrese de comprender los manuales antes de comenzar la operación



Obedezca las ordenanzas de tránsito

Estacionamiento seguro

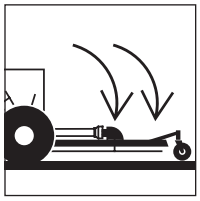
Prácticas de seguridad para el estacionamiento

— Use las zonas designadas o alejadas del tránsito.
— Use lugares con suelo firme y nivelado.
— Aplique el freno de estacionamiento.
— Descienda el equipo de la cortadora de césped hasta el suelo.

Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos**.)

Lugares de estacionamiento con suelo en pendiente:
— Ubique los equipos transversalmente con respecto a la pendiente.
— Aplique los frenos de estacionamiento.
— Descienda el equipo de la cortadora de césped hasta el suelo.
— Bloquee las ruedas del tractor.

Aplique el freno de estacionamiento



Descienda los equipos elevados hasta el suelo

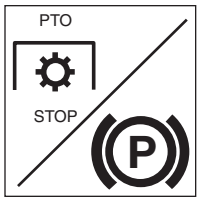
Antes de estacionar temporalmente y dejar equipos deshabilitados cerca de zonas con tránsito:
— Retire los equipos de la vía pública.
— Instale banderas de advertencia.
— Use las balizas de advertencia del tractor.

Apagado con seguridad

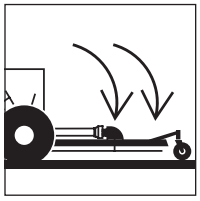
Prácticas correctas de apagado de los equipos

Transforme el apagado correcto de los equipos en un hábito.

El apagado correcto de un tractor y una cortadora de césped puede ayudar a evitar accidentes cuando la cortadora está sin vigilancia. Apague la cortadora siguiendo los procedimientos específicos del manual del operador del fabricante. Estos procedimientos normalmente incluirán:
— Reduzca la velocidad del motor.
— Desenganche el embrague de la TDF y la transmisión.
— Haga funcionar el motor en ralentí para que se enfríe gradualmente.
— Coloque todos los controles en la posición de estacionamiento.
— Aplique el freno de estacionamiento.
— Descienda la cortadora de césped hasta el suelo.
— Descienda los laterales de las cortadoras con laterales hasta el suelo.
— Apague el motor, trabe la ignición y retire la llave de la máquina; llévela con usted.
— Espere hasta que todas las piezas móviles se hayan detenido antes de descender.
— Libere la presión hidráulica moviendo los controles hidráulicos varias veces en todas las direcciones.
— Trabe las cubiertas y los cerramientos antivandalismo, si están instalados, cuando los equipos están sin vigilancia.
— Descienda con cuidado manteniendo contacto de tres puntos.

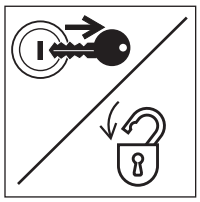


Desenganche la TDF, aplique el freno



Descienda los equipos elevados hasta el suelo

Espere hasta que las piezas giratorias se detengan



Retire la llave, trabe la ignición, llévese la llave

Apagado con seguridad

Descenso correcto

— Nunca descienda de equipos en movimiento.
— Nunca baje de una máquina saltando.
— Descienda con cuidado.
— Verifique que no haya peldaños resbaladizos.
— Mantenga los pies y las manos lejos de los controles.
— Use los asideros y los peldaños durante el descenso.
— Enfrente la máquina y use contacto de tres puntos (2 manos y 1 pie o 2 pies y 1 mano).

Espere hasta que las piezas móviles se detengan

Use contacto de tres puntos; enfrente a la máquina

Realización de mantenimiento con seguridad

Mantenimiento de los equipos

Realice el mantenimiento de los equipos

Asegúrese de mantener los equipos de acuerdo con las instrucciones del fabricante. Verifique con regularidad el funcionamiento de los dispositivos de protección y de seguridad.

No realice ningún trabajo en un tractor o en una cortadora de césped si no está autorizado y cualificado para hacerlo.

Si ha sido autorizado para realizar mantenimiento, **lea los manuales del operador y de servicios**. Estudie las instrucciones; verifique las tablas de lubricación; examine todos los mensajes de instrucciones que haya sobre la máquina. El mantenimiento puede ser peligroso si no se realiza correctamente. Asegúrese de tener las habilidades necesarias, la información y las herramientas y equipos correctos para realizar el trabajo.

¡ADVERTENCIA! No modifique equipos ni agregue componentes no aprobados por el fabricante. Use piezas, lubricantes y técnicas de servicio recomendadas por el fabricante.

Piezas de la cortadora de césped y seguridad personal

Los fabricantes de cortadoras de césped usan sujetadores y específicos y piezas especialmente diseñadas para cumplir con los requisitos de las operaciones de las cortadoras. Las piezas críticas (pernos autobloqueantes de las hojas, hojas, pasadores, escudos y otros componentes especiales) tienen requisitos específicos de resistencia, diseño y ajuste para la marca y el modelo de cortadora que usted está usando.

Evite posibles lesiones graves o la muerte por el uso de piezas o modificaciones no aprobadas:
— No sustituya con tornillería común los pernos de las hojas u otros componentes de piezas especiales originales del fabricante.
— No sustituya hojas, pasadores, escudos u otras piezas críticas.
— No use pernos de mayor resistencia para reemplazar los pernos de seguridad originales del fabricante.

Realización de mantenimiento con seguridad

Preparación personal

Use la ropa de protección personal y los equipos de protección personal (PPE) que se le proporcionen o que requieran las condiciones del trabajo. **SIEMPRE** debe usar gafas de seguridad con escudos laterales.

Puede necesitar también:
— Casco
— Calzado de seguridad
— Anteojos de seguridad, antiparras o protección facial
— Delantal y guantes
— Protección para oídos
— Casco o antiparras para soldar
— Respirador o máscara con filtro

Use la ropa necesaria; no corra ningún riesgo.

Mantenga las manos (y la ropa)alejadas de todas las piezas móviles. No use cordones sueltos, mangas flojas, anillos, relojes o cabello largo.

¡ADVERTENCIA! Evite lesiones graves o muerte por enredos. **No use ropa floja ni accesorios. Manténgase alejado de todos los componentes giratorios cuando el motor está en funcionamiento.** El contacto, el enrollado o el enredo con piezas giratorias o móviles podrían resultar en lesiones graves o la muerte.

Evite las piezas giratorias

Evite puntos donde pueda quedar atrapado

Realización de mantenimiento con seguridad

Use un delantal de caucho y guantes de caucho cuando trabaja con sustancias corrosivas. Use guantes y calzado de seguridad cuando manipula bloques de madera o metales con bordes agudos.

Use siempre anteojos de seguridad, antiparras o protección facial. Proporcionan protección ocular para fluidos bajo presión, mientras se esmerila y se realizan servicios a las baterías. También es necesaria protección contra residuos, líquidos y material suelto producido por el equipo, las herramientas y el aire/agua presurizada.

Use protección facial y siga las instrucciones del fabricante cuando desarma componentes cargados a resorte o cuando trabaja con ácidos de batería. Use un casco o antiparras para soldar con filtro esfumado cuando suelda o corta con soplete.

No arene, esmerile, corte con soplete o suelde sin un respirador aprobado por NIOSH o una ventilación adecuada. Si se requiere soldar en esta máquina, consulte los manuales del operador o de servicios del fabricante o consulte al concesionario de los equipos para obtener los procedimientos correctos.

Mantenga los bolsillos sin objetos que podrían salirse y caer dentro de la maquinaria.

Limpie las superficies resbaladizas

Ventile la zona de trabajo

Maneje las herramientas y las piezas pesadas con sensatez con respecto a usted mismo y a otras personas. Deposite los elementos, no los deje caer.

Preparación de la zona de trabajo

— Ubique la cortadora de césped en una zona nivelada fuera del paso de otros equipos en funcionamiento.
— Asegúrese de que haya luz, ventilación y espacio libre adecuados.
— Quite el aceite, la grasa o el agua para eliminar toda superficie resbaladiza.
— Limpie alrededor de la zona donde se realizarán servicios para minimizar la contaminación.

Realización de mantenimiento con seguridad

Preparación de la máquina

Deben controlarse o reducirse las fuentes de energía almacenada (eléctricas, mecánicas, hidráulicas, neumáticas, químicas, térmicas, etc.) al mínimo practicable antes de realizar cualquier procedimiento de mantenimiento, reparación o servicio.

Prácticas de seguridad para prevenir posibles lesiones por fuentes que liberan energía:

— Desenganche la TDF antes de apagar el motor.
— Coloque los controles en la posición de estacionamiento o punto muerto antes de apagar el motor.
— Aplique el freno de estacionamiento o bloquee las ruedas.
— Espere hasta que todas las piezas móviles se detengan.
— Descienda la cortadora de césped hasta el suelo.
— Descienda los laterales de las cortadoras con laterales hasta el suelo.
— Apague el motor del tractor.
— Libere la presión del sistema hidráulico moviendo los controles varias veces en todas las direcciones.
— Trabe la ignición, retire la llave y llévesela.

Prepare los sistemas de la máquina para realizarles servicios

— Escuche y observe en busca de evidencias que indiquen piezas en movimiento antes de descender.
— Apoye o bloquee con seguridad la cortadora de césped antes de trabajar debajo de ella o de otros componentes elevados.
— Apoye, bloquee o trabe con seguridad los laterales de la cortadora con dispositivos de traba aprobados antes de trabajar cerca o debajo de una cortadora con laterales.
— Alivie la presión antes de desconectar o desarmar un sistema presurizado.
— Bloquee o alivie la presión de los resortes antes de desarmar un mecanismo cargado a resorte.
— Apoye o bloquee con seguridad cualquier componente elevado de la máquina antes de trabajar en él.
— Evite las llamas, las chispas y no fume cerca de combustibles, fluido hidráulico u otro material inflamable como los residuos de los cortes.

Realización de mantenimiento con seguridad

Fije una etiqueta con la advertencia “NO PONER EN FUNCIONAMIENTO” en todas las palancas de control y retire la llave de contacto si la cortadora de césped no debe ser utilizada. Llévese la llave.

Instale dispositivos de apoyo aprobados cuando trabaja debajo o cerca de equipos elevados.

¡ADVERTENCIA! Las cortadoras de césped u otros equipos elevados no apoyados pueden caerse de manera imprevista. **Nunca se introduzca debajo de equipos elevados si no están apoyados en dispositivos de apoyo aprobados.** La caída de equipos podría resultar en una lesión grave o la muerte por aplastamiento.

Retire sólo las guardas o cubiertas que permiten acceder a la zona donde se realizarán servicios. Vuelva a colocar todas las guardas y cubiertas cuando el trabajo esté terminado.

Use una “etiqueta que indique No poner en funcionamiento”

Utilice dispositivos de apoyo aprobados

Vuelva a colocar todas las guardas

Realización de mantenimiento con seguridad

Use ventilación adecuada

Si es necesario hacer funcionar un motor en una zona cerrada, elimine del área las emanaciones de escape con una extensión del caño de escape. Si no tiene esa extensión, asegúrese de abrir las puertas y dejar entrar aire del exterior.

¡ADVERTENCIA! Evite posibles lesiones. **Nunca trabaje en la maquinaria con el motor en funcionamiento salvo que así lo indiquen los manuales del fabricante para un servicio en particular.**

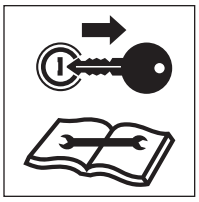
¡ADVERTENCIA! Nunca haga funcionar ningún tipo de motor sin la ventilación adecuada: LAS EMANACIONES DEL ESCAPE PUEDEN SER MORTALES.

Use gatos y malacates con cuidado

Los soportes o bloques de seguridad deben ubicarse en una parte rígida de la cortadora. No ubique soportes debajo de ejes o apoyos de ruedas que puedan girar.

Si debe trabajar debajo de equipos elevados, siempre use bloques de madera (**no de concreto**), soportes de gato u otros soportes rígidos y estables. Cuando use gatos o malacates, siempre asegúrese de que están correctamente apoyados.

¡ADVERTENCIA! Evite posibles lesiones por aplastamiento. **Nunca use bloques de concreto para apoyo.** Pueden colapsar bajo cargas incluso livianas.



Retire la llave y lea el manual de mantenimiento

Ventile la zona de trabajo

Use un apoyo adecuado para los equipos elevados

Asegúrese de que los malacates o gatos que usa estén en buenas condiciones. Nunca use gatos con piezas rajadas, dobladas o retorcidas. Nunca use cables pelados, retorcidos o pellizcados. Nunca use ganchos doblados o deformados.

Realización de mantenimiento con seguridad

Prácticas de seguridad para tareas de mantenimiento comunes

Riesgos del combustible

¡ADVERTENCIA! Siempre use recipientes y/o equipos de distribución de combustible aprobados.

Los combustibles son inflamables; por eso, debe cumplir estas prácticas con el fin de reducir la posibilidad de un accidente grave.

- — Apague el motor y la ignición mientras carga combustible.
- — Siempre conecte a tierra la boquilla de combustible contra el cuello de llenado del depósito para evitar chispas.
- — Mantenga las chispas y llamas abiertas alejadas del combustible.
- — No fume mientras carga combustible o manipula recipientes con combustible.
- — No corte ni suelde en líneas, tanques o recipientes de combustible ni cerca de ellos.
- — No llene el depósito en exceso o derrame combustible. Limpie el combustible derramado de inmediato.

Riesgos del refrigerante de motor

Los sistemas de refrigeración con líquidos acumulan presión a medida que el motor se calienta; **tenga suma precaución antes** de retirar la tapa del radiador. Asegúrese de:

- — Detener el motor y esperar que el sistema se enfríe.
- — Usar ropa de protección y anteojos de seguridad.
- — Girar la tapa del radiador lentamente hasta el primer tope para permitir que la presión escape antes de retirar la tapa por completo.

No fumar; evitar las llamas abiertas

Retire la tapa del radiador lentamente

Realización de mantenimiento con seguridad

Riesgos del sistema hidráulico

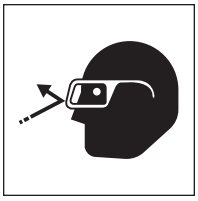
El sistema hidráulico se encuentra bajo presión siempre que el motor está funcionando; puede conservar presión incluso después de apagar el motor. Haga funcionar todos los controles hidráulicos incluyendo el control hidráulico auxiliar después de que el motor esté apagado. Alivie la presión atrapada en las líneas después de que los accesorios están apagados y apoyados en el suelo.

Durante la inspección del sistema hidráulico:
— Espere que el fluido se enfríe antes de desconectar las líneas. El fluido hidráulico caliente puede causar QUEMADURAS GRAVES.
— **No** use las manos para verificar la presencia de fugas. En cambio, use un cartón o papel para buscar fugas.
— Use protección ocular adecuada. El fluido hidráulico puede causar lesiones oculares permanentes.

¡ADVERTENCIA! El fluido hidráulico bajo presión pueden penetrar la piel o los ojos y causar lesiones graves, ceguera o la muerte. Las fugas de fluido bajo presión pueden no ser visibles. **Utilice un cartón o una madera para buscar fugas, no la mano. Use una protección facial o antiparras de seguridad para proteger los ojos.** Si el fluido se inyecta en la piel, debe ser extraído dentro de las próximas pocas horas por personal médico familiarizado con este tipo de lesión.

Cuando ventila o llena el sistema hidráulico, afloje la tapa de llenado con lentitud y retírela gradualmente.

Nunca restablezca una válvula de alivio del sistema hidráulico a una presión mayor que la recomendada por el fabricante.



Use protección ocular

El fluido a alta presión puede inyectarse en el cuerpo

Realización de mantenimiento con seguridad

Riesgos del sistema eléctrico

Antes de trabajar en el sistema eléctrico, desconecte los cables de la batería.
— Retire primero los cables negativos (-) de la batería.
— Al reconectar la batería, conecte los cables negativos (-) de la batería al final.

El líquido del interior de las baterías contiene ácido, que es un VENENO y puede causar QUEMADURAS QUÍMICAS GRAVES.

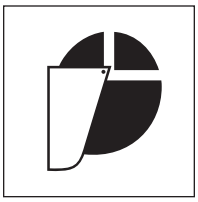
Evite lesiones

— Use una protección facial para evitar el contacto con los ojos.
— Use guantes y ropa resistentes a los productos químicos para mantener al electrolito alejado de la piel y la ropa común.

¡ADVERTENCIA! El contacto con el electrolito daña los ojos y la piel. **Siempre use una protección facial para evitar que el electrolito penetre en los ojos.** Si el electrolito entra en contacto con los ojos, enjuague de inmediato con agua limpia y busque atención médica.

Use guantes de caucho y ropa de protección para mantener el electrolito lejos de la piel. Si el electrolito entra en contacto con la piel o la ropa, lave de inmediato con agua limpia.

Si se ingiere, busque atención médica de inmediato. NUNCA proporcione líquidos que induzcan el vómito.



Use protección facial

Use indumentaria de protección

Realización de mantenimiento con seguridad

Evite explosiones

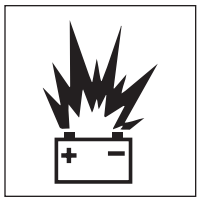
¡ADVERTENCIA! Evite posibles lesiones graves por explosiones. Las baterías de plomo-ácido producen gases sumamente explosivos, especialmente durante la carga. **Mantenga alejados los arcos, las chispas, las llamas y el tabaco encendido.**

— **No** fume cerca de las baterías.
— Mantenga los arcos, las chispas y llamas abiertas alejadas de las baterías.
— Proporcione ventilación adecuada.

Nunca revise la batería colocando un objeto metálico entre los bornes: la chispa resultante podría causar una explosión.

¡ADVERTENCIA! Evite posibles lesiones graves por explosiones de baterías. **No cargue baterías ni arranque con refuerzo el motor si la batería está congelada.** Caliente a 60 °F (15,5 °C) o la batería puede explotar y causar lesiones graves.

Reglas de seguridad durante el arranque con refuerzo de batería:
— Siga las instrucciones para el “arranque con refuerzo de batería” correcto como se especifica en el manual del fabricante.
— Asegúrese de que las máquinas no se estén tocando.
— Observe la polaridad de las baterías y conexiones.
— Realice la conexión final de cable al motor o al punto de tierra más alejado de la batería. Nunca realice la conexión final en el arrancador o la batería muerta: las chispas pueden encender gases explosivos presentes en la batería.
— Cuando desconecta cables después de un arranque con puente, retire los cables en el orden inverso al de la conexión (es decir, la conexión final primero).



Evite las chispas y las llamas abiertas cerca de las baterías

Para el arranque con refuerzo, observe la polaridad y realice la conexión final en el punto de descarga a tierra

Realización de mantenimiento con seguridad

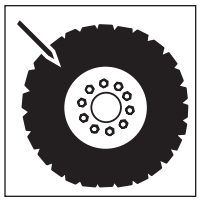
Mantenimiento de neumáticos y ruedas

Revise los neumáticos y las ruedas a diario porque la estabilidad del tractor y la cortadora de césped puede verse significativamente afectada por la presión de los neumáticos o daños en los neumáticos o en las ruedas.

Revise los neumáticos para verificar:
— La presión correcta.
— Cortes y protuberancias.
— Clavos u otras pinchaduras.
— Desgaste desparejo o excesivo.
— Estado de los vástagos y tapas de las válvulas.

Revise las ruedas para verificar:
— Daños en las llantas.
— Tuercas o pernos faltantes o flojos.
— Desalineación.

Todos los servicios de neumáticos deben ser realizados por un centro de servicios para neumáticos cualificado o por una persona de servicio autorizada debidamente capacitada en los procedimientos y el uso del equipo de seguridad destinado a los servicios de neumáticos.



Revise los neumáticos y las ruedas en busca de daños

Mantenga la presión correcta en los neumáticos

Realización de mantenimiento con seguridad

Mantenimiento de neumáticos y ruedas (continuación)

¡ADVERTENCIA! Los tipos de ruedas y neumáticos que generalmente se encuentran en estos equipos requieren cuidados especiales al realizar servicios para evitar lesiones graves o la muerte.

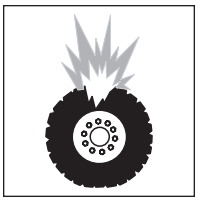
No infle los neumáticos por encima de la presión recomendada. Asegúrese de volver a colocar el lastre de los neumáticos si está instalado. Consulte las especificaciones del fabricante para ver los requisitos de lastre.

Mantenga las tuercas de las ruedas apretadas según las recomendaciones del fabricante.

Es normal que la presión de los neumáticos aumente durante el funcionamiento; NO se debe reducir.

Nunca vuelva a inflar un neumático que se ha desinflado mucho o por completo sin retirar el neumático de la rueda. Haga inspeccionar atentamente el neumático y la rueda para detectar daños antes de volverlos a armar.

Al agregar aire a un neumático, hágalo desde cierta distancia. Use una manguera larga con mandril de autofijación. Siempre párese detrás de la trocha cuando ajusta la presión de un neumático.



Evite la explosión de los neumáticos

No infle neumáticos con gases inflamables o con sistemas que usan un inyector de alcohol.

Nunca corte o suelde una rueda con un neumático inflado instalado en ella. Esto podría causar descompresión explosiva.

Verifique que el tamaño del neumático y la rueda coincidan correctamente.

Cuando reemplaza neumáticos, asegúrese de que sean de la clasificación adecuada especificada por el fabricante.

Los neumáticos no deben funcionar a velocidades más altas que las nominales. La mayoría de los neumáticos para agricultura están clasificados para una velocidad máxima de 20 mph (32 km/h).

Realización de mantenimiento con seguridad

Servicio y reparaciones completas antes de liberar la máquina

Apriete todos los pernos, accesorios y conexiones con las torsiones especificadas por el fabricante.

Instale todas las guardas, cubiertas y escudos después de realizar los servicios. Reemplace o repare los que estén dañados. Llene y recargue los sistemas a presión sólo con los fluidos aprobados o recomendados por el fabricante.

Arranque el motor y revise para detectar fugas. (Consulte la página 23, **Riesgos del sistema hidráulico**.) Haga funcionar todos los controles para asegurarse de que el tractor y la cortadora de césped funcionan correctamente. Pruebe la máquina si es necesario. Después de las pruebas, apague y verifique el trabajo realizado. ¿Falta algún pasador, arandela, tuerca de seguridad, etc.? Vuelva a revisar todos los niveles de fluidos antes de liberar la máquina para el funcionamiento.

Todas las piezas deben ser inspeccionadas durante la reparación y deben reemplazarse si están gastadas, rajadas o dañadas. Las piezas excesivamente gastadas o dañadas pueden fallar y causar lesiones o la muerte.

Reemplace cualquier letrero dañado o ilegible.

Verifique el trabajo de servicio cuando está completo

Mantenimiento de las hojas de la cortadora

No corra riesgos usando hojas dañadas o dobladas. Los fabricantes de cortadoras de césped de la Asociación de Fabricantes de Equipos (Association of Equipment Manufacturers, AEM) y la Asociación de Fabricantes de Equipos para Agricultura (Farm Equipment Manufacturers Association, FEMA) piden que las hojas de cortadoras NO se reutilicen, enderecen, refuercen en su superficie o suelden. Si una hoja rota es arrojada por una cortadora, podrían producirse lesiones graves o la muerte.

Realización de mantenimiento con seguridad

Mantenimiento de las hojas de la cortadora (continuación)

— **¿Cómo están hechas las hojas de la cortadora de césped?** Están hechas acero para resortes de aleación de alta resistencia. Se forjan en caliente y se les da forma para cumplir con las especificaciones individuales del fabricante; luego, se tratan y templan a un estado dúctil, de alta resistencia para reducir la posibilidad de rupturas durante el corte. Las hojas se prueban para garantizar que cumplan con las normas de resistencia, dureza y ductilidad. Si una hoja no cumple con alguna de estas especificaciones, no se utilizará en la cortadora de césped.

— **¿Qué sucede cuando se dobla una hoja de la cortadora?** Se necesita una gran fuerza de impacto para doblar la hoja. Esta fuerza de impacto a menudo resulta en que las hojas se agujerean o marcan. Una vez que una hoja está dañada por un agujero o una marca, es mucho más probable que ocurra una falla de la hoja. Cuando una hoja está gravemente doblada, puede crearse una rajadura microscópica en ella. Enderezar la hoja no quita o repara esta rajadura, sino que puede causar rajaduras adicionales.Tensiones adicionales durante los trabajos de corte pueden resultar en una falla imprevista de la hoja.

— **Evite doblar las hojas.** Contribuya a prevenir que las hojas de la cortadora se doblen o rajen evitando el contacto con objetos sólidos. Las hojas de la cortadora de césped están destinadas a cortar hierba, arbustos, vegetación leñosa y árboles y ramas pequeños. No están diseñadas para entrar en contacto con objetos sólidos como roca, cemento o postes de acero. Inspeccione la zona antes de usar la cortadora. Retire o marque claramente los objetos sólidos y corte alrededor de ellos.

— **Sustituya las hojas dañadas!** Inspeccione las hojas de la cortadora diariamente o después de golpear algún objeto sólido. Si una hoja de la cortadora de césped se daña (está doblada, agujereada, rajada) o desgasta más del 25 por ciento del tamaño original, debe retirarse y sustituirse con una nueva. Siempre use las hojas originales del fabricante. Las hojas de marcas no originales pueden no cumplir con los requisitos de resistencia, dureza y ductilidad del fabricante de la cortadora.

— **No corra riesgos usando hojas dañadas o dobladas.** El uso de una hoja de cortadora dañada o enderezada puede resultar en la ruptura de la hoja y que la hoja sea arrojada hacia el operador o una persona ajena causando una lesión grave o la muerte. El precio de una nueva hoja es bajo en comparación con la posibilidad de una lesión grave que podría resultar de una hoja doblada o rota arrojada por la cortadora

Palabras finales para el usuario

Acaba de terminar de leer el Manual de la cortadora de césped industrial y para agricultura AEM. Es imposible que este manual abarque todas las situaciones de seguridad que se podría encontrar a diario. Su conocimiento de estas precauciones de seguridad y de su cumplimiento de las reglas básicas de seguridad contribuirán a formar un buen juicio en todas las situaciones. Nuestro objetivo es ayudarlo a desarrollar, establecer y mantener buenos hábitos de seguridad para que la operación de una cortadora de césped industrial y para agricultura le resulte más fácil y más segura.

Éste es otro manual de una serie publicada por AEM sobre la operación de maquinaria en condiciones de seguridad. Muchas de las ilustraciones de este manual de seguridad se pueden encontrar y descargar en http://pictorials.aem.org. Para obtener publicaciones adicionales, visite nuestro sitio web en www.safetymaterials.org.

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www.aem.org

SECTION I
INTRODUCTION AND DESCRIPTION

INTRODUCTION

We are pleased to have you as a Rhino customer. Your Rhino Zero Turn Riding Mower has been carefully designed to give maximum service with minimum down time. This manual is provided to give you the necessary operating and maintenance instructions for keeping your mower in top operating condition. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety precautions decaled on the machine and noted throughout the manual for safe operation of the implement. If any assistance or additional information is needed, contact your authorized Rhino dealer.

NOTE:

All references made to right, left, front, rear, top or bottom is as viewed facing the direction of forward travel.

DESCRIPTION

The Zero Turn Riding Mower is intended for use on lawns and other frequently maintained areas where a smooth, even cut is desired and superior maneuverability is needed. The tractor unit consists of a 30 hp Kohler twin cylinder engine. The engine has a pressurized oil lubrication system with spin-on type filter, fused electronic ignition, electric start and a 12.5 gallon fuel system with 61" and 73" decks.

Two hydrostatic transaxles are used for propelling and steering. The pumps are belt driven by the engine output shaft. One lever for each drive controls both speed and direction. This independent control of each drive wheel coupled with continuously variable speed selection gives the Zero Turn mower exceptional maneuverability.

The mower attachment is available in 61" or 73" cutting widths. The mower has three cutting blades driven by an electromagnetic clutch through a single V-belt.

CONTROLS

OPERATOR INTERLOCK SYSTEM

Your Rhino Zero Turn Riding Mower is equipped with an Operator Interlock System that is designed to help prevent possible serious injuries. Understanding and maintaining this system is vital for safe operation.

To Start Engine:

1. Blades (PTO) must be disengaged.
2. Control levers in neutral (swung out).
3. Parking brake set.

The Engine Will Stop If:

1. The operator leaves the seat with:
   a. The control levers out of neutral (swung in).
   b. The blades are engaged.
   c. The parking brake is off.
   d. All of the above.
2. The park brake is on before the control levers are swung in.

DO NOT OPERATE MOWER IF SAFETY SWITCHES ARE NOT OPERATING PROPERLY.

OPERATOR CONTROLS

⚠ WARNING

DO NOT OPERATE MACHINE UNLESS INTERLOCK SYSTEM FUNCTIONS PROPERLY. FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

TRACTOR SPECIFICATIONS

Tread Width - 61" Deck models - Outside Tires. . . . . 57"
73" Deck models - Outside Tires . . . . . 57"

Height - To top of seat back . . . . . 51"

Fuel Tank - 61" & 73" Deck models . . . . . 12.5 gallons

2 Hydraulic Fluid Reservoir Tanks . . Approx. 34 oz. each

Hydrostatic Transaxles. . . . . (2) Hydro-Gear 5400's

Engines - 30 h.p. Kohler Command Pro

Tires - Front (All models) . . . . . 13 x 6.5 - 6
Drive - 61" & 73" decks . . . . . 24 x 12.0 -12

1 Ignition Key - Starts and stops engine.

2 Engine Throttle - Controls engine speed.

3 Two Steering/Speed Control Levers - In front of seat at side. (See page 21)

4 PTO Switch - Engages electric clutch which engages mower blades.

5 Parking Brake Lever- Engages parking brake. (See page 14)

6 Cutting Height Adjust Pin - Sets cutting height to desired position. (See page 12)

7 Choke Location- Aids in starting engine.

8 Light Switch (Optional)

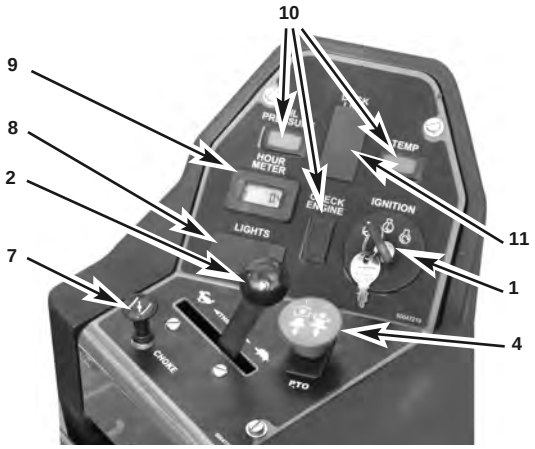
9 Hour Meter / Tachometer (see Instruction, page16)

10 Warning Lights / Audible Alert for high engine temperature (Kohler models only) and oil pressure.

11 Deck Lift Switch (Optional) - For raising and lowering deck.

12 Fuel Tank Site Lines - Monitor amount of fuel in tank. (See page 14

13 DC Power Outlet (See page 14)



DECK SPECIFICATIONS

ITEM		
Cutting width	61"	73"
Cutting Height ---------- 1-1/2" to 5" in 1/4" increments		
Blades	21"	25"
Overall width including chute	73"	85"

Material thickness - Deck ----------7 GA.----------

Spindle bearings ----------25 mm----------

SECTION II
OPERATION

GENERAL SAFETY

Only qualified people familiar with this operator's manual should operate this machine. Operator should wear hard hat, safety glasses, and safety shoes. Avoid loose fitting clothing or jewelry. The operator should read, understand and practice all safety messages shown on the caution, warning and danger decals affixed to the machine to avoid serious injury or death. Before beginning operation, clear work area of any objects that may be picked up and thrown by mower. Check for ditches, stumps, holes or other obstacles that could upset power unit or damage mower. Tall grass can hide obstacles. Always push steering levers apart, set parking brake, disengage PTO, turn off engine, and allow blades to come to a complete stop before leaving operator's seat. Do not operate without all shields in place and in good condition.

PRE-OPERATION CHECKLIST

1. Make sure fuel tank is full. Use regular unleaded gasoline. See engine manual for more details.

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH: GASOLINE IS EXTREMELY FLAMMABLE AND EXPLOSIVE UNDER CERTAIN CONDITIONS.

- **REFUEL IN A WELL VENTILATED AREA WITH ENGINE STOPPED.**
- **DO NOT SMOKE OR ALLOW FLAMES OR SPARKS IN THE REFUELING AREA OR WHERE GASOLINE IS BEING STORED.**
- **DO NOT OVERFILL FUEL TANK. AFTER REFUELING, MAKE CERTAIN THE TANK CAP IS CLOSED PROPERLY AND SECURELY.**
- **BE CAREFUL NOT TO SPILL FUEL WHEN REFUELING. FUEL VAPOR OR SPILLED FUEL MAY IGNITE. IF ANY FUEL IS SPILLED, MAKE SURE THE AREA IS DRY BEFORE STARTING THE ENGINE.**
- **KEEP OUT OF REACH OF CHILDREN**

2. Make sure dirt and foreign matter are kept out of fuel tank. Use a clean funnel and fuel can.

3. **Do not mix oil with gasoline.**

4. Do not use white, high test or premium gasoline. Do not use de-icers, carburetor cleaners or other such additives.

5. Check the crankcase oil level. Make sure the engine is off. The mower should be parked on a level area. Do not overfill. (See your engine manual for more detailed instructions.)

6. Check the hydrostatic transmission oil level. (See "Maintenance" section of this manual.)

7. Check battery fluid level.

8. Inspect V-belts

9. **Check tire pressure** (Use low pressure gauge)**: Front Tires - 15 psi, Drive Tires - 15 psi**

10. Make sure underside of mower deck is free of grass.

11. Make sure mower blades are sharp and secured tightly.

12. Clean the air intake screen on the engine if necessary.

13. Perform any other maintenance as it becomes necessary. (See "Maintenance" section)

14. Check low oil pressure warning buzzer for operation. (It should "sound-off" whenever ignition key is in the "on" position, but engine is not running.)

15. Check parking brake operation by disengaging hydrostatic pumps (freewheeling position), and placing the brake lever in the "on" position. Attempt to rock tractor by hand. Both drive wheels should be locked. When the brake handle is in the "off" position, both drive wheels should turn freely. If there is a problem in either position, refer to adjustment procedure in the maintenance section.

16. Seat Adjustments: The high-back full suspension seat has a variable rate suspension system, and sliding seat to accomodate different operators.

    Operator Weight Adjustment Knob - Turn the knob until the indicator position closely matches your weight to give the most comfortable ride.

    Lever Release Seat Slides - Push the lever inward to release the latch. Slide the seat forward or rearward to your most comfortable position and release the lever.

⚠ WARNING

ENGINE EXHAUST GASES CONTAIN POISONOUS CARBON MONOXIDE.

- **NEVER RUN ENGINE IN A CLOSED BUILDING OR CONFINED AREA.**
- **AVOID INHALING EXHAUST GASES.**

OPERATION

1. OPEN FUEL TANK SELECTOR VALVE left or right tank.

2. MOVE CONTROL LEVERS TO neutral “OUT” position by pushing each one straight sideways.

3. SET PARKING BRAKE. Pull rearward to set.

4. DISENGAGE MOWER BLADE CLUTCH by moving clutch switch to “OFF” (down) position.

5. SET ENGINE CHOKE CONTROL for cold starts to full position.

6. SET ENGINE THROTTLE TO 1/2 throttle.

7. TURN IGNITION KEY to “START” position and release to “RUN” as soon as engine starts. NOTE: Prolonged cranking will damage starter motor and shorten the battery life.

8. ADJUST ENGINE THROTTLE AND CHOKE for desired engine smoothness and speed. NOTE: When mowing, always run engine at full throttle.

9. RELEASE PARKING BRAKE. Push brake lever forward to release.

⚠ CAUTION

If the operator is inexperienced with the zero turn mower lever steering/speed control, he/she should follow these recommendations: Disengage the mower blades. Go very slowly until thoroughly familiar with the machine. Keep away from fences, buildings, and other obstructions. While becoming familiar with the machine, move the Control Levers smoothly and slowly. Practice until operation is smooth and efficient.

10. A roll-over protection system (ROPS) is installed on your machine. Operate unit with the ROPS in the raised and locked position and use seat belt. There is no roll-over protection when the ROPS is down. If it is necessary to lower the ROPS, do not wear seat belt. Raise the ROPS as soon as clearance permits.

⚠ WARNING

MAKE SURE SEAT FRAME RETENTION CLICK-PINS ARE IN PLACE AFTER LIFTING SEAT PAN FOR SERVICE.

11. TO DRIVE: Adjust seat forward or backward for operator comfort. Move the Control Levers to the “IN” position. Move Control Levers forward to move forward. Move levers slowly forward to increase speed. To reverse direction, move the Control Lever on the side to which you want to turn slightly rearward of the other Control Lever. To turn on a zero radius axis, go slowly and pull one Control Lever back and push the other Control Lever forward, depending on which direction you wish to turn.

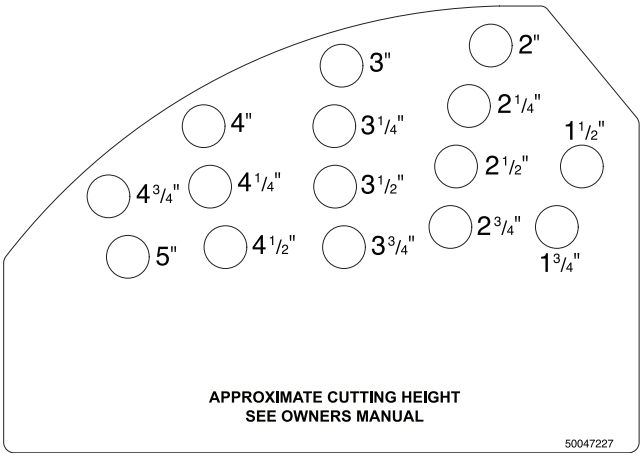
⚠ WARNING

AVOID SERIOUS INJURY OR DEATH:
DO NOT MOVE STEERING LEVERS FROM FORWARD TO REVERSE OR REVERSE TO FORWARD POSITION RAPIDLY. A SUDDEN CHANGE IN DIRECTION MAY CAUSE LOSS OF CONTROL AND/OR DAMAGE TO EQUIPMENT. FOR SMOOTH, SAFE OPERATION, MOVE THE CONTROL LEVERS IN A GENTLE, SLOW MOTION, ESPECIALLY ON GRADES.

12. BRAKING: To brake mower, gently move Control Levers in the direction opposite to travel. If the parking brake is engaged with the Control Levers in the “IN” position the engine will stop.

13. CUTTING HEIGHT ADJUSTMENT:
1. Stop engine and move the control levers to the neutral position and engage the parking brake.
2. Disengage the blades.
3. Depress the deck lift foot pedal raising the deck to the transport position and place the pedal in the locked position.
4. Insert height adjustment pin into the hole corresponding to the desired cutting height. See decal on the side of the deck lift plate.
5. Depress the deck lift pedal and lower the deck to the selected mowing height.
6. To transport, depress the lift foot pedal and lock in position, then move the height adjustment pin to the 5” position.
7. The cutting height adjustment is only a recommended guide. During normal mowing cut only 1/3 of the grass blade. Set cutting height to achieve your desired results.

CUTTING HEIGHT ADJUSTMENT DECAL



ANTI-SCALP ROLLER OR CASTER ADJUSTMENT:

1. Stop engine and move the control levers to the neutral position and engage the parking brake.

2. Disengage the blades.

3. The Anti-Scalp deck rollers are adjustable up and down to provide improved deck flotation and scalping protection at various cutting heights. They are not intended to ride continously on the ground. Rollers should maintain .375" minimum clearance to ground. DO NOT adjust rollers to support deck. (Refer to photographs)

14. ENGAGE MOWER BLADES by pulling up on the PTO clutch switch. The engine will not start if the PTO switch is engaged. If the engine is running while the PTO clutch is engaged and the operator leaves the seat, the engine will stop.

15. TO STOP:

   A. Slow engine speed with throttle to slowest position

   B. Disengage the mower blade clutch by moving the PTO clutch switch to the "OFF" position.

   C. Move Control Levers to neutral position and then to the "OUT" position.

   D. Set the parking brake.

   E. Turn ignition key to "OFF" position.

   F. Remove the key and wait for all movement and sound to cease before dismounting.

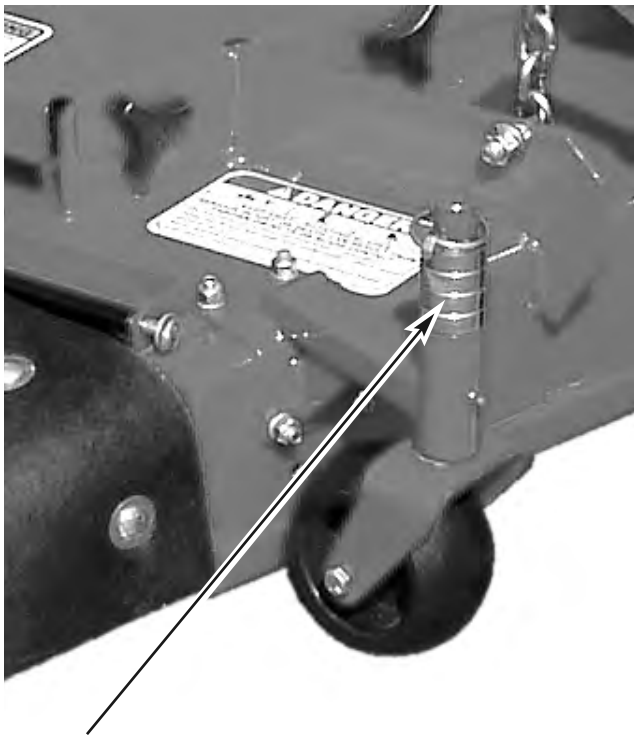
⚠ WARNING

Use EXTREME caution when mowing and/or turning on slopes as loss of traction and/or tip-over could occur. Drive slower on slopes. DO NOT mow slopes greater than 15 degrees. Watch for ditches, holes, rocks, dips and rises, which change the operating angle. Keep away from drop-offs and steep banks. Avoid sudden starts when mowing uphill - mower may tip backwards. Loss of traction may occur going downhill - weight transfer to the front wheels may cause drive wheels to slip and cause loss of braking. DO NOT mow slopes when grass is wet - slippery conditions affect steering and reduce traction and braking. The operator is responsible for safe OPERATION ON SLOPES.

ANTI-SCALP ROLLER

Roller Height Adjustment Holes

CASTER ASSEMBLY
(Standard on 73" decks, optional on 61" decks)



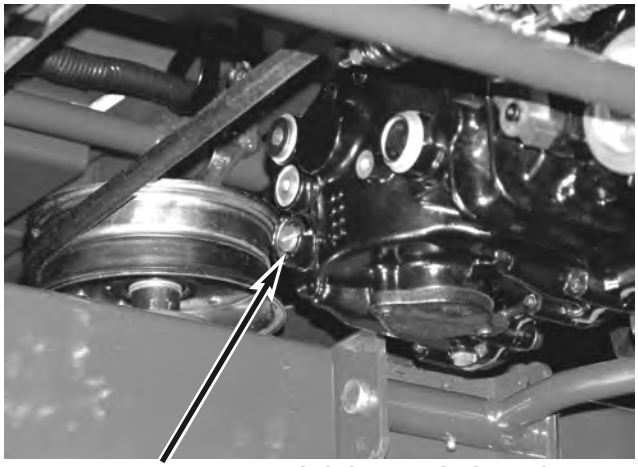
Spacers may be positioned above and/or below the caster arm to adjust position.

⚠ WARNING

AVOID SERIOUS INJURIES TO OTHERS: ALWAYS REMOVE THE KEY FROM THE IGNITION SWITCH WHENEVER THE MOWER IS UNATTENDED TO PREVENT CHILDREN OR UNAUTHORIZED PERSONS FROM STARTING THE ENGINE.

NOTE: To move the tractor without power, the transaxles must be in the free wheel position. Failure to do so could possibly damage the hydraulic transaxles. Never pull at more than 2 MPH.

16. PUMP BYPASS-TO MOVE THE TRACTOR WITHOUT POWER: The pump bypass valves are located on the inside of each transaxle on the underside of the power unit. Use a large screw driver, rotate the bypass valves on each transaxle to the vertical position to release pressure for free wheeling.
    To place the transaxles back in service, rotate the slots on the bypass valves back to the horizontal position.



BYPASS VALVE (Right Hand Shown)

Transaxle pictured above is viewed from left rear looking foward toward inside of the right hand transaxle.

17. FUEL TANK SELECTOR VALVE: Located on the front panel below the operator is the fuel directional valve. This valve has three positions for operations and each position is made in 1/4 turn increments. This directional valve has a shut off position and can be used when the machine will not be used for a few days or when the unit is transported to and from a work site.

Fuel Flow	Valve Position
Off	Down
Right Tank	Right
Left Tank	Left

MOWING RECOMMENDATIONS

1. Keep mower blades sharp.
2. Make sure deck and discharge chute are clean.
3. Pivoting Front Axle Settings - The Typhoon Series pivoting front axle increases operator comfort, traction, mower life and improves quality of cut. In some conditions stopping the front axle from pivoting will improve the evenness of the cut. It can also reduce scuffing of the anti-scalp rollers when mowing on uneven terrain.To set the front axle in a fixed position, move the locking pins to the outer positions. (See page 21)

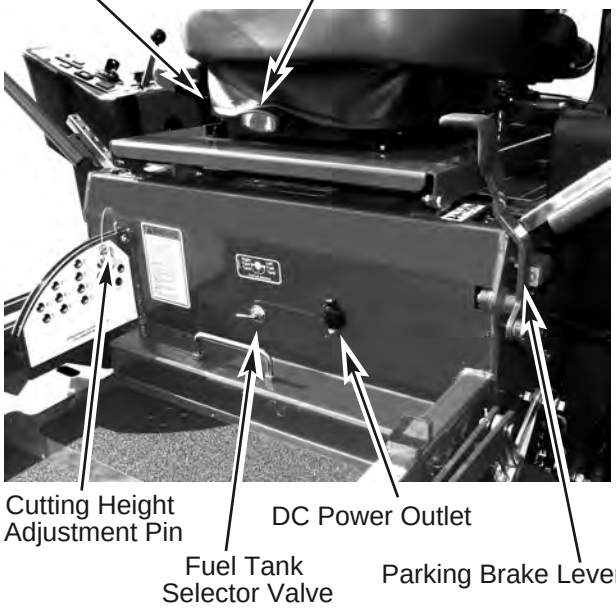
⚠ DANGER

TO AVOID SERIOUS INJURY FROM BLADE CONTACT, POWER MUST BE OFF TO CLEAN DISCHARGE CHUTE. KEEP HANDS AND FEET AWAY FROM UNDERNEATH MOWER TO AVOID SERIOUS INJURY OR DEATH.

⚠ WARNING

ROTARY MOWERS CAN DISCHARGE OBJECTS AT HIGH SPEEDS. TO AVOID SERIOUS INJURIES OR DEATH:

- **OPERATE ONLY WITH SIDE BANDS IN GOOD REPAIR AND CHUTE OR GRASS CATCHER ATTACHMENT INSTALLED.**
- **KEEP CHILDREN, PETS, AND BYSTANDERS AWAY FROM THE WORK AREA.**
- **DO NOT OPERATE MOWER IN THE VICINITY OF OTHER PERSONS.**
- **DISCHARGE AWAY FROM BUILDINGS, WALLS OR OTHER STRUCTURES.**



SECTION III
MAINTENANCE

⚠ CAUTION

BEFORE PERFORMING ANY MAINTENANCE, TURN OFF ENGINE, REMOVE KEY AND DISCONNECT SPARK PLUGS. USE EXTREME CARE WHEN WORKING ON MACHINERY. DO NOT WEAR WATCH OR JEWELRY. DO NOT WEAR LOOSE FITTING CLOTHES, AND OBSERVE ALL COMMON SAFETY PRACTICES WITH TOOLS.

IMPORTANT:
BEFORE PERFORMING ANY SERVICE, MAINTENANCE OR REPAIR ON THE ENGINE, REFER TO THE RESPECTIVE ENGINE MANUFACTURERS' MANUAL FOR SPECIFIC INFORMATION CONCERNING YOUR PARTICULAR BRAND OF ENGINE.

MAINTENANCE SCHEDULE

SERVICE	*WHEN*
Check crankcase oil level	before each use
Check air intake screen	after each use
Clean grass from under deck	after each use
Check tire pressure	every 10 hours
Sharpen mower blades	every 10 hours
Clean air filter element	every 8 hours
Check 20W50 motor oil in hydrostatic system	every 10 hours
Check drive belts	every 50 hours **(20 hr break-in)**
Grease blade spindles	every 50 hours
Grease front wheels	every 50 hours
Change engine crankcase oil and filter	every 50 hours **(5 hrs break-in)**

2013 Model	Engine RH Part #	Engine Model #	Oil Capacity (Refill)	Manufacturer
TY3061KH3 TY3073KH3	50068385	CV750 - 30 HP Command Pro	1.7 - 1.9 U.S. qt.	Kohler

2012 Model	Engine RH Part #	Engine Model #	Oil Capacity (Refill)	Manufacturer
TY3061KH2 TY3073KH2	50068385	CV750 - 30 HP Command Pro	1.7 - 1.9 U.S. qt.	Kohler

Change hydrostatic oil filter (See your Rhino Dealer)
Important: Substitution of an improper filter will cause hydrostatic failure which will not be covered under warranty — every 500 hours **(50 hrs break-in)**

Replace air filter element	annually or 500 hours
Check spark plugs	annually or 100 hours
Service battery	annually or 500 hours

Perform these maintenance procedures more frequently under extremely dusty, dirty conditions.

Replace decals when illegible. Write parts dept. for free replacement.

WARNING: Your mower is equipped with a ROPS, make sure seat frame retention click-pins are in place after lifting seat pan for service.

1. **ENGINE:**
For complete maintenance and operating information for your engine, please refer to your engine operating and maintenance instructions furnished by the engine manufacturer and included in your Zero Turn mower information packet.

NOTE

Air intake screen must be kept clean. If plugged, engine may be seriously damaged by over heating.

2. **TACHOMETER / HOURMETER / OIL CHANGE**
The tachometer / hourmeter includes a Flash Alert feature to remind you to change engine oil and filter at recommended intervals. The tachometer displays engine rpm when the engine is running and elapsed time in hours when the engine is turned off.

Oil Change Flash Alert -
Break In:
Service Alert will be CHG OIL: Period is 5 HRS with 1 hour gentle reminder. Alert frequency every 10 seconds, occurs when engine is running or off. Service Alert will automaticly reset after CHG OIL...now has flashed for 1 hour of engine run time (resets to normal interval).

Normal:
Service Alert will be CHG OIL: Period is 50 HRS with 1 hour gentle reminder. Alert frequency is every 10 seconds, occurs when engine is running or off. Service Alert will automatically reset after CHG OIL... now has flashed for 1 hour of engine run time.

3. **BATTERY:**
When taking the battery out of the mower for servicing, make sure to reconnect the cables to the battery exactly as they were prior to removal.

Keep the battery clean. Remove the corrosion around the battery terminals by applying a solution of one part baking soda to four parts water. Coat all exposed terminal surfaces with a light layer of grease or petroleum jelly to prevent corosion.

NOTE

At temperatures below 32 degrees F (0 deg C) the full charge state must be maintained to prevent cell electrolyte from freezing and causing permanent battery damage.

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH:

- **THE BATTERY CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. EYES - FLUSH WITH WATER AND GET PROMPT MEDICAL ATTENTION. ANTIDOTE: INTERNAL - DRINK LARGE QUANTITIES OF WATER OR MILK. FOLLOW WITH MILK OF MAGNESIA, BEATEN EGG OR VEGETABLE OIL. CALL A PHYSICIAN IMMEDIATELY.**
- **BATTERIES PRODUCE EXPLOSIVE GASES. KEEP SPARKS, FLAMES AND SMOKING MATERIALS AWAY. VENTILATE WHEN CHARGING IN AN ENCLOSED SPACE. WEAR EYE PROTECTION WHEN WORKING NEAR BATTERIES.**
- **KEEP OUT OF REACH OF CHILDREN.**

4. **TIRES**:
Correct tire pressure is essential for efficient operation of the mower. Check tire air pressure periodically. Inflate front and rear tires to **15 psi**.

Lug bolts should be checked regularly for tightness. Torque lug bolts to 50 ft./lbs. The center hub nut should be torqued to 175 - 200 ft./lbs. and cotter key installed.

5. MOWER BLADES:
Check sharpness of mower blades after every 10 hours of operation. To sharpen blades proceed as follows:

⚠ WARNING

WHEN IT IS NECESSARY TO RAISE THE DECK OR MOWER FOR SERVICE OR MAINTENANCE, TO AVOID SERIOUS INJURY OR DEATH, STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES AND SECURELY SUPPORT THE DECK OR MOWER BEFORE WORKING UNDERNEATH.

A. Lift deck and secure in raised position.
B. Remove bolt, cup washer, and blade from shaft.
C Blades should be discarded when worn excessively. See sketch.
D. Sharpen blade with a hand file, electric grinder

or blade sharpener. Wear gloves and eye protection when sharpening. Grind blade at original bevel.

E. Check balance of blade by positioning the blade on a nail or blade balance pedestal. Grind the blade on the end that is heavier until both sides balance.

F. Install blades with the concave side of the cup washer against blade. Be sure blades are installed with uplifts and cutting edges in the proper directions. **Tighten retaining bolt to 76 ft./lbs.**

⚠ WARNING

WHEN IT IS NECESSARY TO RAISE THE DECK OR MOWER FOR SERVICE OR MAINTENANCE, TO AVOID SERIOUS INJURY OR DEATH, STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES AND SECURELY SUPPORT THE DECK OR MOWER BEFORE WORKING UNDERNEATH.

6. CLEANING GRASS BUILD UP UNDER DECK

Depress the deck lift foot pedal and lock in position, then move the height adjustment pin to the 5" position.

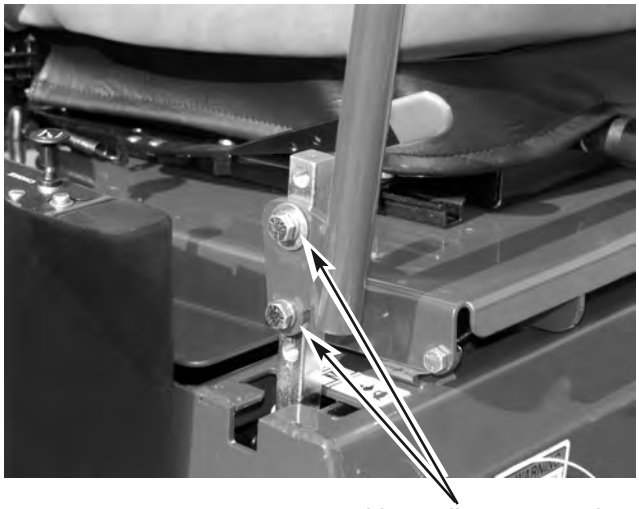
Lift the front of the unit and support unit securely.

Clean out any grass build up from underside of deck and in deck discharge chute.

MOTION CONTROL LEVER ADJUSTMENT

1. There are three lever height positions available. Place the levers in the position that provides the most confortable operating position for you.

2. Align the levers front/rear position. With the levers in the neutral position, loosen the hardware and adjust the levers by tilting forward or backward until properly aligned. tighten hardware.



Lever Position Adjustment Bolts

MOTION CONTROL STEERING ADJUSTMENT

1. Raise the drive wheels of the Zero Turn off of the ground. Safely block the frame in this position so it is secure. This adjustment must be made with the drive wheels turning.

2. Remove the electrical connection from the seat switch and **temporarily** install a jumper wire across the terminals of the wiring harness.

3. Loosen the jamnuts on the hex turnbuckle, which connects the lever control arm to the pump control arm. Note: the nuts to the front of the hex turnbuckle have left-handed threads.

4. Start the engine. Run the engine at full throttle and release brake.

5. Position the control levers in the neutral position. If the drive wheels creep (rotate) in the neutral position then lengthen or shorten the turnbuckle assembly. Make the adjustment to stop the wheel from rotating.

6. Re-tighten the nuts at the end of the hex turnbuckles and repeat the procedure for the opposite side of the unit.

7. Shut the unit off. Remove the jumper wire from the wiring harness and **replace** the connectors into the seat switch. Never operate the mower unless all safety switches are operating properly.

DRIVE ADJUSTMENTS

Steering and motion controls should be uniform in all forward and reverse speeds. From the reverse position the levers should automatically return to neutral when released.

⚠ CAUTION

STOP THE ENGINE BEFORE MAKING ADJUSTMENTS.

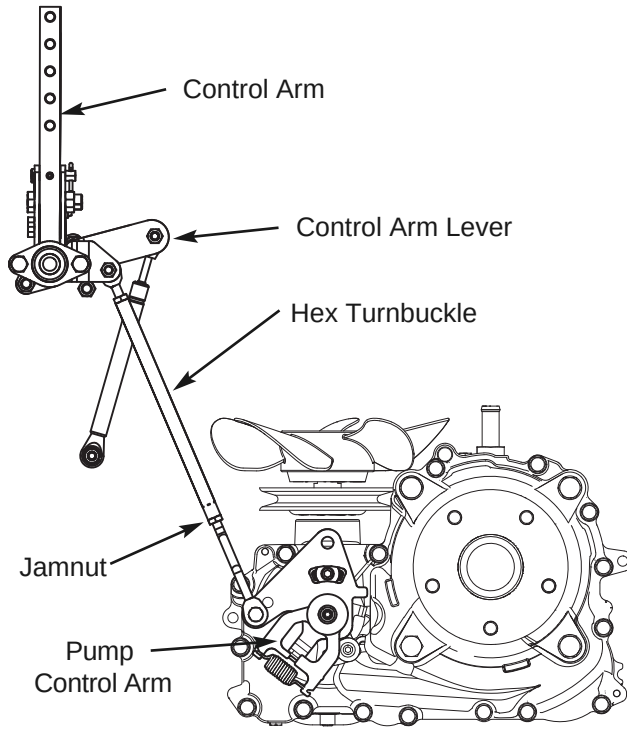
TEST DRIVE OPERATIONS

Check air pressure in tires. Equal tire pressure is critical for proper drive operation.

1. Raise drive wheels off ground. Safely block the frame in this position.

2. Put control levers in neutral lock position (control levers swung outward).

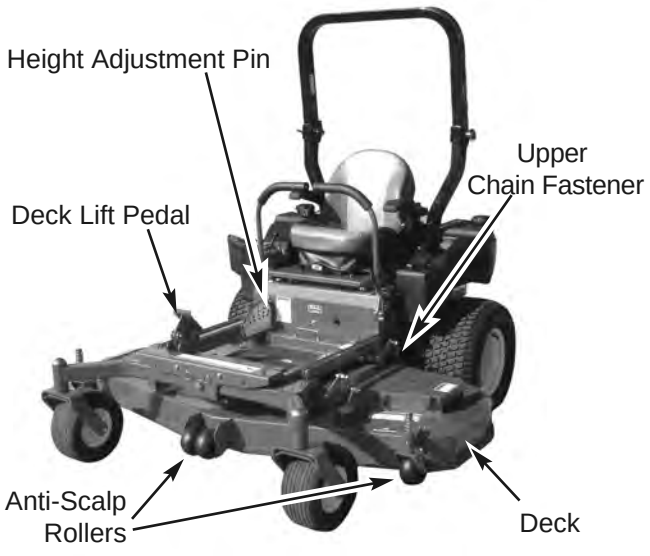
3. Start engine. Wheels should not rotate. If one or both drive wheels are turning, perform procedures under “Motion Controll Adjustment” for side(s) that wheel turns.



LEVELING THE DECK

⚠ CAUTION

STOP THE ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES FOR SAFETY.



1. Set all tire pressures to the correct specifications.
2. Place machine on a level slab of concrete.
3. Depress the deck lift pedal raising the deck to the full lift height position and move the height adjustment pin to the 5” position.
4. Place a level on the deck, from front to rear. If the level is too short to reach all the way from front to rear, lay a straight edge on the deck first, then place the level on the straight edge.
5. Lay a .125” spacer beneath the front of the level.
6. Adjustment may be made by loosening the upper chain fasteners and moving the fasteners in the provided slot. Adjust fasteners until the level’s bubble is centered. Repeat for the other side.

COUNTERBALANCE SPRING

Raise the cutter deck to the transport position. Adjust the spring length with the nuts on the eye-bolt, located under the seat, to the following lengths for 3” cutting Heights:
61” Deck - Spring Length of 11”
73” Deck - Spring Length of 11”
For lower cutting height, loosen spring at 1/4” intervals until stop hits adjusting pin in correct height location. If deck floats, loosen spring at 1/4” interval until deck stops floating. (Measure from inside of hook to inside of hook)

DECK BELT REPLACEMENT

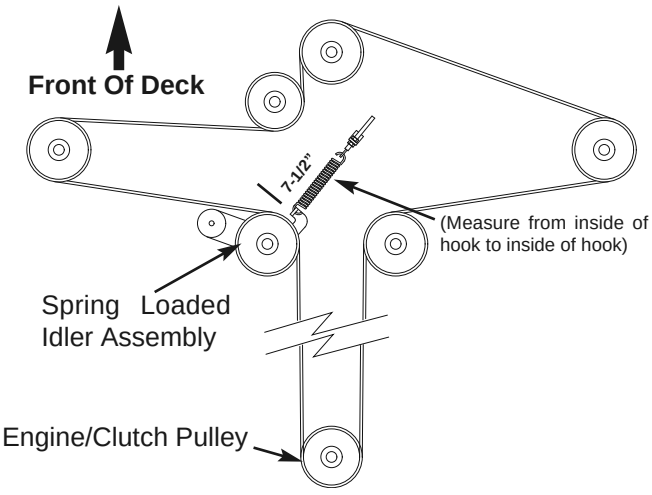
Belt adjustment should be checked every 50 hours to get maximum life and cutting performance from the mower. Belt tension is adjusted by increasing or decreasing the length of the spring on the movable idler. For proper belt tension on the 61” and 73” mowers, the spring length should be set to 7-1/2” inside hook to inside hook with the deck in 3” cutting height position. To adjust the spring length, loosen or tighten the 3/8” hex nuts on the eye bolt until the correct spring length is reached.

DECK BELT REPLACEMENT

USE ONLY GENUINE RHINO REPLACEMENT PARTS

A. Remove the deck shield assembly.
B. Relieve the spring tension by loosening the two 3/8” hex nuts on the eye bolt.
C. Remove old belt.
D. Install new belt. Be sure that the belt is properly positioned in all sheave grooves.
E. Adjust tension on the belt by adjusting the length of the spring on the moveable idler. **The correct spring length is 7-1/2”** for the 61” and 73” decks.
F. Reinstall the deck shield assembly.

DECK SPINDLE BELT ROUTING DIAGRAM



⚠ WARNING

TO AVOID SERIOUS BURN INJURIES:

- **ALLOW ENGINE, OIL AND HYDRAULIC FLUIDS TO COOL BEFORE SERVICING TRANSMISSION OR ENGINE SYSTEM**

⚠ CAUTION

TO AVOID CLEANING SOLVENT FIRES:

- **AVOID USING FLAMMABLE SOLVENTS.**
- **AVOID AREAS WITH IGNITION SOURCES WHEN USING FLAMMABLE SOLVENTS.**

⚠ WARNING

HIGH PRESSURE HYDRAULIC FLUID LEAKS CAN PENETRATE SKIN CAUSING SERIOUS INJURY AND GANGRENE.

INJECTED FLUID MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS BY A DOCTOR FAMILIAR WITH THIS TYPE OF INJURY.

TO AVOID SERIOUS INJURY FROM PRESSURE LEAKS:

- **USE CARDBOARD AND NOT HANDS TO SEARCH FOR LEAKS.**
- **RELIEVE HYDRAULIC PRESSURE BEFORE WORKING ON SYSTEM.**
- **CHECK HYDRAULIC HOSES, LINES, AND CONNECTIONS FOR TIGHTNESS AND GOOD CONDITION BEFORE APPLYING SYSTEM PRESSURE.**

START-UP MAINTENANCE

HYDROSTATIC FLUID

Rhino recommends the use of 20W50 motor oil in the hydrostatic reservoirs.

START-UP PROCEDURE

⚠ WARNING

TO AVOID INJURY FROM EQUIPMENT GROUND TRAVEL AND MOVEMENT DURING START-UP PROCEDURE:

DO NOT START OR JOG ENGINE UNTIL:

- **TRANSAXLES ARE IN NEUTRAL POSITION**
- **DRIVE WHEELS ARE RAISED OFF THE GROUND.**
- **EQUIPMENT IS SECURELY BLOCKED-UP TO KEEP WHEELS FROM GROUND CONTACT.**
- **PTO AND OTHER WORK FUNCTIONS ARE DISCONNECTED.**
- **KEEP HANDS, HAIR AND CLOTHING AWAY FROM ROTATING BLADES.**

The following start-up procedure should always be followed when starting a new installation or when restarting and installation in which the transaxle has been removed from the system.

Prior to starting the transaxles, make certain all system components (reservoirs, fittings, etc.) are clean prior to filling with fluid.

Fill the reservoir with recommended fluid which should be filtered prior to entering the reservoir.

Start the engine and idle at the lowest possible RPM.

With the bypass valve closed, slowly move the displacement control in both the forward and reverse directions. As air is purged from the unit, the oil level in the reservoir will drop and bubbles may appear in the fluid. Refill the reservoirs as necessary.

Place the steering levers in the neutral position and open the bypass valve. Slowly move the steering levers in both the forward and reverse directions to purge the air from the closed circuit.

Close the bypass valve and run the unit in both directions for several minutes until any remaining air is purged from the unit. Refill the reservoirs as necessary.

Stop the engine, check for and correct any fluid leaks, and check the reservoirs level. Add fluid if necessary. The transmission is now ready for operation.

HYDROSTATIC MAINTENANCE

Check the reservoirs daily for proper fluid level. Oil level should be to the bottom of the slot on the reservoir baffle.

The transaxle units normally do not require regular fluid changes. The system filter should be changed after the first 50 hours of break-in, then every 500 hours thereafter. The fluid and filter should be changed and the system cleaned if the fluid becomes contaminated with foreign matter (water, dirt, etc.).

PUMP DRIVE BELT TENSION ADJUSTMENT

1. Stop engine and remove key.

2. The pump drive belt tension is adjusted through a spring loaded idler pulley.

3. Adjust the eye bolt so the spring length is 6” (measured to the inside of the spring loops).

PARKING BRAKE ADJUSTMENT

CHECK TO MAKE SURE BRAKE IS ADJUSTED PROPERLY. FORCH TO LOCK BRAKE HANDLE IN PLACE SHOULD BE 30 POUNDS.

⚠ WARNING

TO ADJUST BRAKE TENSION:

WHEN IT IS NECESSARY TO RAISE THE DECK OR MOWER FOR SERVICE OR MAINTENANCE, TO AVOID SERIOUS INJURY OR DEATH, STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES AND SECURELY SUPPORT THE DECK OR MOWER BEFORE WORKING UNDERNEATH.

Elevate rear of the machine so the drive wheels are off the ground enough to turn by hand. Securely support the machine in this position so it is safe to work undeneath.

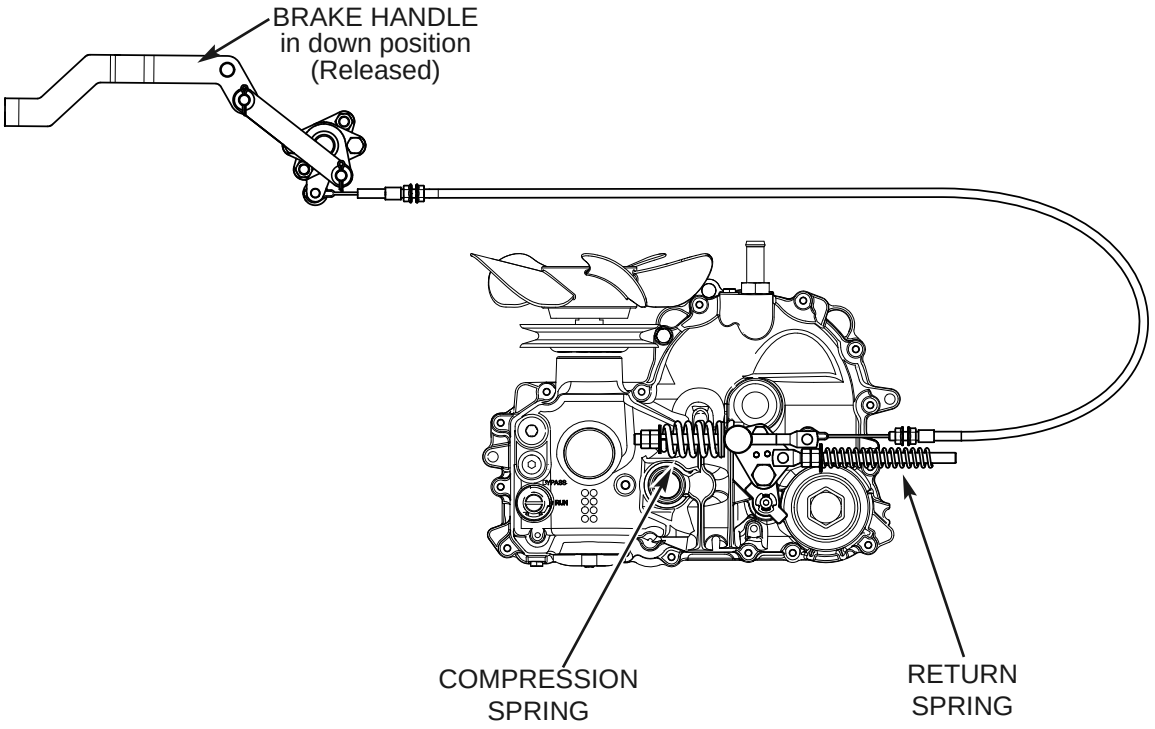
Continued on next page

BRAKE ENGAGEMENT:

With the brake handle in the up position, try to rotate the tires by hand. If the tires turn, increase the pressure on the compression spring by tightening the nut adjecent to the spring. Attempt to rotate the tires by hand. If the tires are locked, tighten the jamb nut to lock the spring setting.

BRAKE RELEASE:

With the brake handle in the down position, increase the pressure of the return spring by tightening the nut adjecent to the spring the compression spring is not compressed. Tires should rotate when turned by hand. Tighten jamb nut together to lock the return spring setting.



TROUBLESHOOTING CHECK LIST

1. ENGINE IDLES POORLY:

Carburetor maladjustment _____ readjust carburetor
Improper spark plug gap _____ check and re-gap plug

2. ENGINE BACKFIRES:

Carburetor maladjustment _____ readjust carburetor

3. ENGINE RUNS BUT POWER UNIT WON'T MOVE FORWARD

Drive belt loose or broken _____ re-tension or replace
Pump shift arm disconnected _____ reconnect
Hydrostatic reservoir oil low _____ add oil
Pump bypass valve open _____ put in closed position
Hydrostatic oil filter plugged _____ replace filter
Bad Transaxle _____ consult dealer

4. POWER UNIT LOSES POWER OR HYDROSTAT SYSTEM OVERHEATS

Hydrostatic oil reservoirs too low _____ add oil
Hydrostatic oil reservoirs blowing oil out cap _____ overfilled or water contaminated

5. ENGINE STALLS WHEN BLADES ARE ENGAGED

Operator not on seat _____ sit on seat
Faulty interlock system _____ consult dealer
Bad blade spindle bearing _____ consult dealer
Deck drive belt not properly routed _____ reroute
Blades blocked by foreign material _____ clean under deck

•See engine manual for engine adjustments

ENGINE ELECTRICAL TROUBLE

1. ENGINE WILL NOT TURN OVER:

Dead battery
Bad ground connection
Bad terminal connection at battery
Wiring harness plugs are not attached properly at the key switch or the PTO switch
Bad parking brake switch
Bad PTO switch

2. ENGINE WILL TURN OVER, BUT WILL NOT START:

A. If there is spark at the plug:

No fuel
Bad fuel solenoid in engine

B. If there is no spark at the plug:

Make sure safety interlock system is sequenced:
- PTO switch is off
- Control levers in neutral position
- Parking brake is on
- Operator in seat

Check safety interlock switches:
- Seat switch
- Neutral switch

Bad ignition module on engine

POOR CUTTING PERFORMANCE

- **ENGINE SPEED IS TOO SLOW:**

  Always mow at full throttle.

- **BELT SLIPPAGE:**

  Tighten deck adjusting spring to 7-1/2".

- **DECK IS PLUGGED WITH GRASS:**

  Clean underneath the mower.

- **BLADES ARE NOT SHARP:**

  Sharpen the blades or replace.

- **CUTTING HEIGHT:**

  Normal mowing - cut only 1/3 of the grass blade.

- **FINISHED CUT IS UNEVEN:**

  Groundspeed is too fast.

- **BLADES ARE WORN DOWN TOO FAR:**

  Replace your blades.

SECTION IV
ASSEMBLY

MOUNTING THE CONTROL LEVERS

Mount the control levers to the 3/4" x 3/4" square bars positioning the control levers to the preferred height and mount with 3/8" x 1" fasteners, lock washers, and flat washers. Move the control levers forward or rearward for operator comfort.

ROPS

Insert the ROPS frame into the channels in the ZT frame so the upper folding portion angles forward toward the operators seat. Attach with the 1/2" x 4-1/4" fasteners and locknuts.

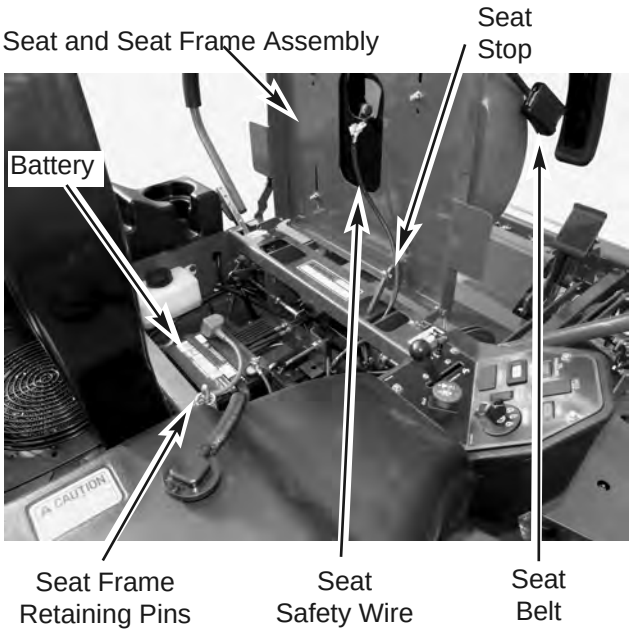
MOUNTING THE SEAT

Mount the seat and seat frame assembly to the mainframe using the capscrew and nut installed in the seat hinge tubes. Attach the seat stop to the seat. Attach seat safety wire to switch under the seat.

BATTERY

Attach the positive lead to the battery.

Additional wire tie straps are shipped to secure the wiring harness as needed.



PIVOTING FRONT AXLE SETTINGS

The Rhino pivoting front axle increases operator comfort, traction, mower life and improves the quality of cut. In conditions where the terrain is extremely uneven, better cutting performance may be achieved by locking the axle in a fixed position. This is easily done by moving the locking pins to the outer positions.

ITEMS TO CHECK:

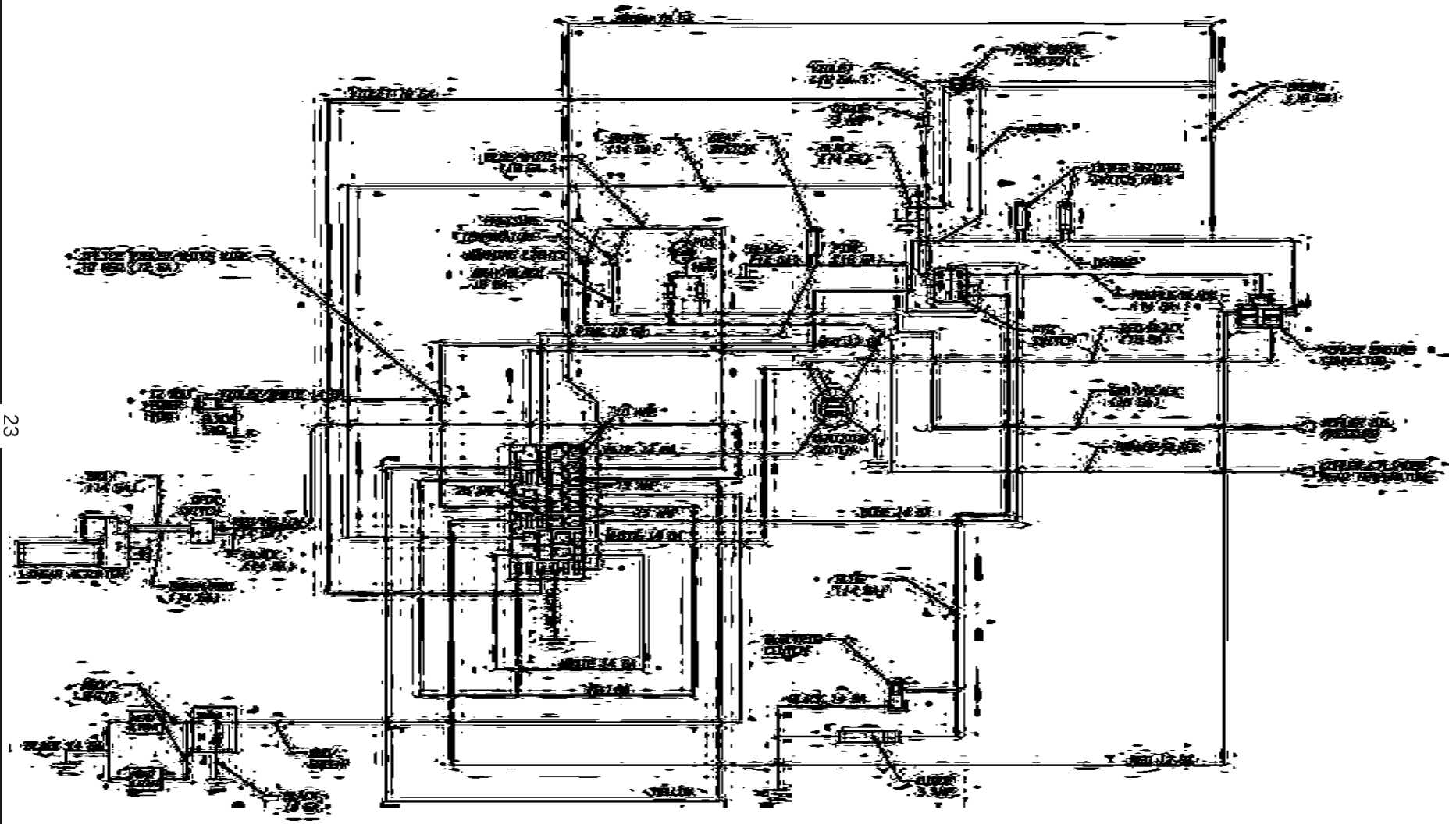
Check oil level in the engine (see engine manual)

Check the fluid level in the hydrostatic oil reservoir.

Check tightness of all fasteners, including bolts, lug nuts, and setscrews.

Check tire pressure.

KOHLER ENGINE WIRING HARNESS
30 HP MODELS



*** NOTE: Use a 30 Amp fuse with linear actuator.**

SAFETY DECALS

To promote safe operation, Rhino supplies safety decals on all products manufactured. Because damage can occur to safety decals either through shipment, use or reconditioning, Rhino will, upon request, provide safety decals for any of our products in the field at no charge. Contact your authorized Rhino dealer for more information.

CAUTION

★SHUT OFF ENGINE BEFORE REFUELING

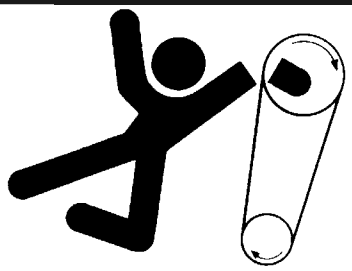
★NEVER FILL FUEL TANK INDOORS OR WHEN ENGINE IS HOT.

★WIPE UP ALL SPILLED GASOLINE BEFORE STARTING ENGINE.

★DO NOT SMOKE WHILE REFUELING.

94131

DANGER



KEEP AWAY!

SHIELD MISSING FROM THIS AREA

TO AVOID SERIOUS INJURY OR DEATH, DO NOT OPERATE WITHOUT THIS AND ALL OTHER SHIELDS IN PLACE AND IN GOOD CONDITION.

823324

WARNING

ROTATING DRIVE PARTS BENEATH

- ENTANGLEMENT WITH ROTATING DRIVE PARTS CAN CAUSE INJURY OR DEATH.
- DO NOT OPERATE WITHOUT THIS AND ALL OTHER SHIELDS IN PLACE AND IN GOOD CONDITION.

50012615

WARNING

Non-genuine parts can fail catastrophically.
TO AVOID SERIOUS INJURY OR DEATH:

- ONLY use genuine RHINO replacement parts.
- Non-genuine parts can fail creating hazardous conditions for operator and bystanders.

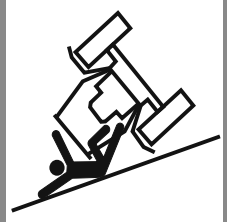
Contact local dealer or RHINO about repair parts at:

1020 S. Sangamon Ave.,
Gibson City, IL 60936
Customer Service: 800-446-5158.
Email: parts@servis-rhino.com

www.algqr.com/rpm

D862

WARNING



SERIOUS INJURY OR DEATH MAY RESULT FROM MACHINE ROLLOVER

- Failure to follow these instructions could result in serious injury or death.
- Do not operate machine on steep slopes or near drop offs.
- Avoid sharp and/or quick turns.
- Do not exceed the machine weight rating of the rops.
- Always use seat belt.
- Do not jump if machine tips.
- If ROPS is foldable
  - Always keep the ROPS fully extended.
  - WHEN ROPS MUST BE DOWN-
    - Do not use seat belt.
    - Drive with extra care.
- If equipped with seat platform, Do not operate machine without seat platform pins in place.

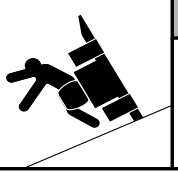
50048632

DANGER

KEEP AWAY – ROTATING BLADES
SERIOUS INJURY OR DEATH CAN RESULT FROM THROWN OBJECTS OR BLADE CONTACT

* DO NOT STAND ON OR NEAR MACHINE WHEN IN OPERATION.
* KEEP HANDS AND FEET AWAY FROM UNDERNEATH CUTTER TO AVOID SERIOUS INJURY.
* NEVER OPERATE WITHOUT DISCHARGE CHUTE OR VACUUM BLOWER ASSEMBLY IN PLACE.

85020

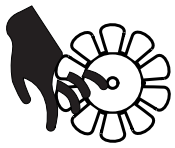


WARNING

- OPERATE CONTROLS SMOOTHLY AND SLOWLY, ESPECIALLY ON SLOPES.
- MOVE VERY SLOWLY WHEN ATTACHMENT IS REMOVED.
- DO NOT OPERATE ON STEEP SLOPES: SEE OPERATORS MANUAL FOR DETAILS.
- ALWAYS LOOK BEHIND MACHINE BEFORE BACKING.
- DO NOT MOW WHERE MACHINE COULD SLIP OR TIP.
- BACK UP SLOPES. GO FORWARD DOWN SLOPES.

50029501

DANGER



ROTATING BLADES-KEEP AWAY

• KEEP HANDS, HAIR AND CLOTHING AWAY FROM ROTATING BLADES.

50031003

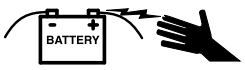
WARNING

TO AVOID SERIOUS INJURY OR DEATH

DO NOT OPERATE MOWER WITHOUT DISCHARGE SHIELD OR DEFLECTOR IN PLACE AND GOOD REPAIR.

83056

WARNING



TO AVOID SERIOUS INJURY OR DEATH,

* DO NOT ALTER ELECTRICAL SYSTEM. WRONG WIRING CONNECTIONS WILL DAMAGE ELECTRICAL COMPONENTS AND MAY MAKE THE SAFETY SWITCHES INOPERATIVE.
* ALWAYS REMOVE JEWELRY BEFORE ATTEMPTING REPAIR OR REPLACEMENT OF ELECTRICAL COMPONENTS.

94132

WARNING

TO AVOID SERIOUS INJURY OR DEATH,

★READ OPERATOR'S MANUAL BEFORE OPERATING & FOLLOW ALL PRECAUTIONS. (CONTACT DEALER FOR MANUALS)

★LOWER IMPLEMENT, STOP ENGINE AND REMOVE KEY BEFORE DISMOUNTING.

★NO RIDERS. DO NOT OPERATE MOWER IN VICINITY OF OTHER PERSONS.

★ALLOW NO CHILDREN OR UNQUALIFIED PERSONS TO OPERATE EQUIPMENT.

★CLEAR MOWING AREA OF DEBRIS.

★KEEP SHIELDS AND GUARDS IN PLACE. KEEP CLEAR OF DRIVES AND BELTS.

★SECURELY SUPPORT MOWER & REMOVE KEY BEFORE WORKING UNDERNEATH.

★KNOW HOW TO STOP TRACTOR AND EQUIPMENT QUICKLY IN AN EMERGENCY.

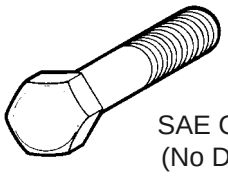
★BE CAREFUL ON UNEVEN TERRAIN. DECREASE SPEED WHEN TURNING.

94134

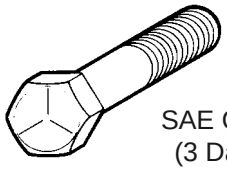
TORQUE SPECIFICATIONS

AMERICAN

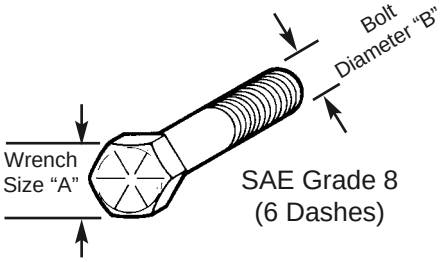
Bolt Head Markings



SAE Grade 2
(No Dashes)



SAE Grade 5
(3 Dashes)

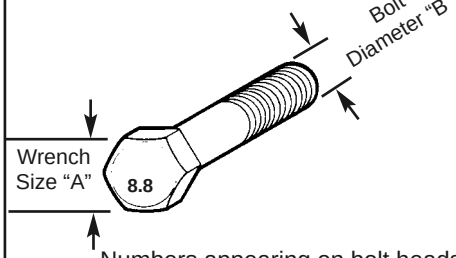


SAE Grade 8
(6 Dashes)

Proper toque for American fasteners used on Rhino equipment.
Recommended Torque in Foot Pounds (Newton Meters).*

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 - 2O UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 28 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 - 8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288(1745)
1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

METRIC



Numbers appearing on bolt heads indicate ASTM class.

*Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

Proper torque for metric fasteners used on Rhino equipment.
Recommended torque in foot pounds (newton Meters).*

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)

TYPHOON SERIES
ZERO TURN RIDING MOWERS

Optional Equipment:

Caster Bundle (Available for 61” deck only)

Canopy Kit

Light Kit

Electric Actuator Bundle

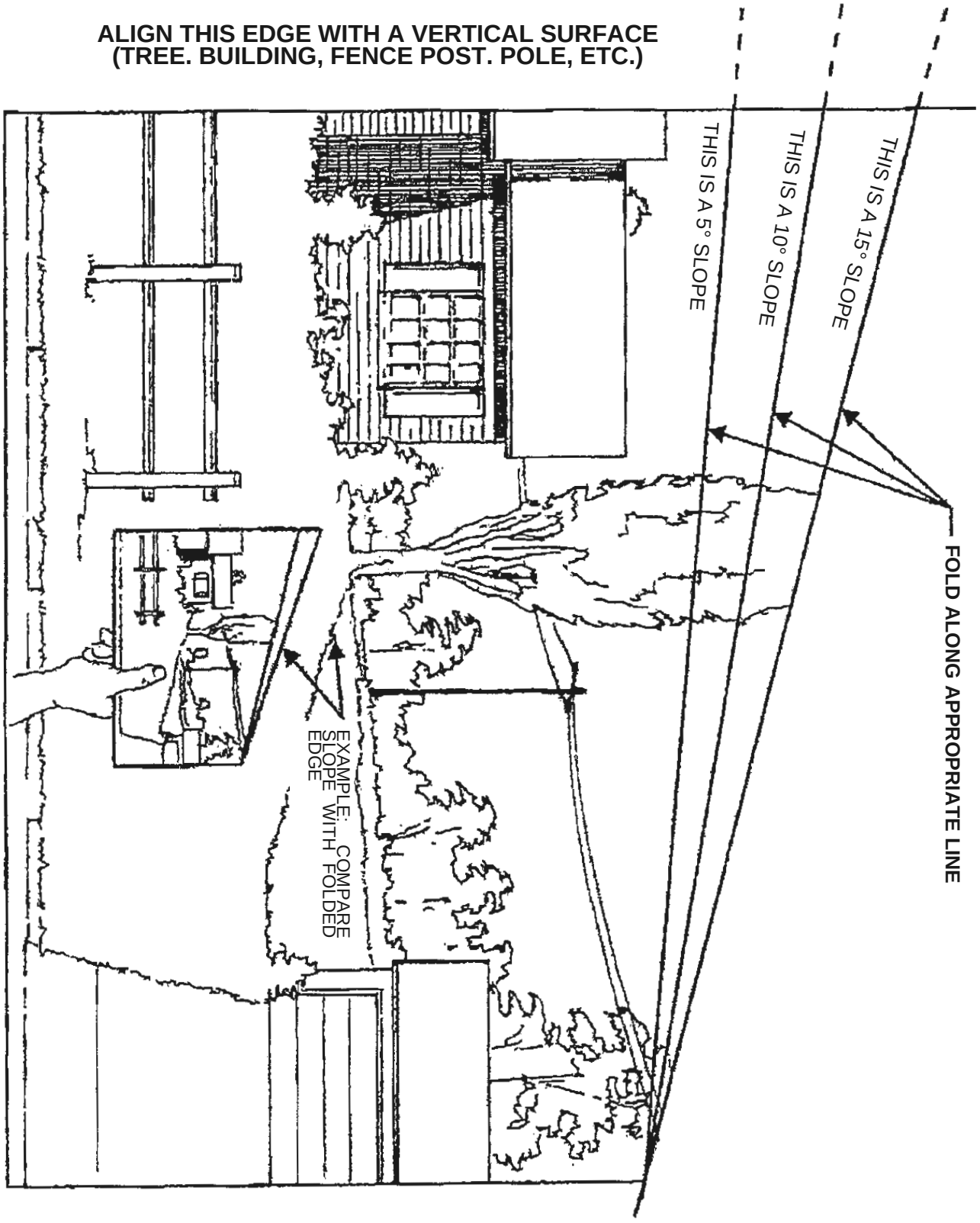
Rear Hitch Kit

Mulching Kit 61”

Rear Wheel Weights

SLOPE ANGLE GUIDE

ALIGN THIS EDGE WITH A VERTICAL SURFACE (TREE. BUILDING, FENCE POST. POLE, ETC.)



TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.
The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

REQUIRED OF THE OWNER:
1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
2. Provide Seat belts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seat belt while the tractor is moving; and
4. Ensure that each employee tightens the Seat belt sufficiently to confine the employee to the protected area provided by the ROPS

REQUIRED OF THE OPERATOR:
1. Securely fasten seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going - especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly - no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
9. When the tractor is stopped, set brakes securely and use park lock, if available.

☒ Keep children away from danger all day, every day...

☒ Equip tractors with rollover protection (ROPS) and keep all machinery guards in place...

☒ Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.

TYPHOON SERIES
ZERO TURN RIDING MOWER

TYPHOON -SOM - 02/13
Printed U.S.A.

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